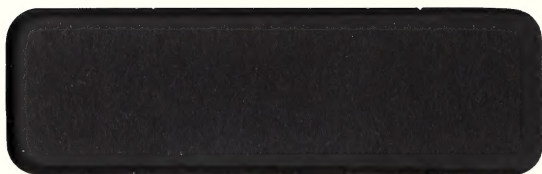


AL.2.1988-76

# Medication Module



DDN 7769531



CP  
OCT 22 1987

ADVANCED TRAINING

# Medication Module

FOR

REGISTERED NURSING ASSISTANTS

DEVELOPED BY

NURSING ASSISTANT PROGRAM


HEALTH CAREERS DEPARTMENT



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Registered Nursing Assistant Test-Graduate Module

Meet Your Instructor

Hi, my name is Gail Madlon. I am your  
Instructor for your Post-Graduate  
course, Administer Oral Medication  
Using a Controlled Dosage/ Unit Dose/  
Medication Card System.

My experience includes; four years as  
an instructor in the Nursing Assistant  
Program at Alberta Vocational Centre,  
Edmonton as well as staff nursing in  
wards of patient care in both  
urban and rural hospitals.

I warmly anticipate discussing your  
assignment during our telephone  
sessions and meeting you at the  
workshop.

### **POST GRADUATE MODULE**

### **ADMINISTER ORAL MEDICATION**

### **USING A CONTROLLED DOSAGE/**

### **UNIT DOSE/MEDICATION CARD SYSTEM**

Sincerely yours,

Gail Madlon



## Registered Nursing Assistant Post-Graduate Module

### Meet Your Instructor

#### INTRODUCTION



Hi, my name is Gail Maddox. I am your instructor for your Post-Graduate course, Administer an Oral Medication Using a Controlled Dosage/ Unit Dose/ Medication Card System.

My experience includes; four years as an instructor in the Nursing Assistant Program at Alberta Vocational Centre, Edmonton as well as staff nursing in various areas of patient care in both urban and rural hospitals.

I eagerly anticipate discussing your progress during our telephone conversations and meeting you at the scheduled workshop.

Sincerely yours,

Gail Maddox

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## Registered Nursing Assistant Post-Graduate Module

### Administer Oral Medication Using a Controlled Dosage/Unit Dose/Medication Card System

#### INTRODUCTION

##### **a) RATIONALE:**

In some clinical settings, the role of the Registered Nursing Assistant has been expanded to include the administration of medications. Educational preparation for this skill is offered as a post-graduate course for Registered Nursing Assistants.

Under the Health Disciplines Act (1983):

"A nursing assistant who has received the appropriate advanced training may provide the following services under the direction of a physician or nurse:

- a) oral administration of medications other than narcotic or PRN on the order of a physician or nurse."

##### **b) PRE-REQUISITE:**

- 1) a Registered Nursing Assistant

##### **c) TERMINAL OBJECTIVE:**

The goal or terminal objective of this course is:

The Registered Nursing Assistant will prepare and administer oral medication (except narcotic/PRN) to a patient following task analysis and agency policy.

##### **d) SELF-STUDY:**

The module has been prepared and organized as a **self-study** course. It contains the following:

- 1) Index: An overall view of content eg. a list of objectives.

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose/Medication Card System

### INTRODUCTION

#### ii) Objectives:

The objectives follow a logical sequence and have to be read in numerical order for you to understand the information. For example in Section A you would have to learn to identify common symbols and abbreviations (objective 1) before you could interpret a doctor's order (objective 15)

#### iii) Learning Activities:

Each objective has a Learner Activity which includes a study guide of articles, tables, case studies, exercises, or task analysis.

The articles and tables contain information about the objective where the case studies and exercises offer an opportunity for you to apply your knowledge. Most exercises and case studies are followed by a completed answer sheet so you can compare your answers and receive immediate feedback.

For example, Objective 1 in Section A involves you identifying common symbols and abbreviations by reading Article 1 and completing Exercise 1.

The task analysis are step by step descriptions of the actual skill of preparing and administering an oral medication to a patient.

#### iv) Division of Information:

**Pre-requisite Unit**-Systems of Measurement and Mathematics Review

**Section A** - Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Section B** - Administer Oral Medication Using a Medication Card System

#### v) Mini-Quizzes:

There is a Mini-Quiz at the end of each unit and section for you to self-test your knowledge. The mini-quiz includes true/false questions, fill in the blanks, matching items, multiple choice and long answer questions. A completed answer sheet is provided to correct your mini-quiz.

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose/Medication Card System

### INTRODUCTION

#### v) Mini-Quizzes (Cont'd)

The answer sheet also contains an objective list for each test question. Therefore, you can find which objective you need to review. If you obtained a score of less than 80% you should review all the unit/section. This promotes earlier detection of learning problems and correction of errors.

#### vi) Self-Directed Learning:

This method of learning involves you studying the information in your own time at your own rate and in your own preferred location. Prior to attending the two day workshop all articles and tables are to be read and studied and all exercises, case studies and mini-quizzes are to be completed. The task analysis or skill descriptions should be practiced at home. Therefore you may have to work on the module at least 2-3 hours per day.

The group session in the first day of the workshop involves participating and sharing ideas and interpretations as a group. It also offers a chance to solve individual problems.

Therefore, you are responsible for your own learning. This may be different from your past experience of education where you listened to lectures and wrote notes or read material before class and attended a lecture on the same information.

#### vii) Pointers for Self-Study:

- follow the objectives/sections by sequence.
- write your answers to exercises, case studies, and mini-quizzes. It forces you to show what you learned and increases the probability that you will retain what you learned.
- correct your answers to exercises, case studies and mini-quizzes by the provided answer sheet.
- review the objective completely even if you have only 1 incorrect answer for each exercise or case study.
- review all the unit/section if you obtained a score of less than 80% on the mini-quiz.



## Administer Oral Medication Using a Controlled Dosage/Unit Dose/Medication Card System

### INTRODUCTION

- vii) Pointers for Self-Study: (Cont'd)- write notes, questions or problems on the provided Group Session sheet on p. vi for the Group Session. This will help you be prepared and benefit from the workshop.
- schedule your time. Write time limits for each objective and section on a calendar. Circle a date for review and for the module to be completed. Use the study plan guideline.
  - study in a quiet environment with no distractions.
  - note darkened and underlined words. This indicates an important point.

### e) SCHEDULE:

#### Workshop:

##### Day I:

- A.M.:     - Group Session  
              - View Filmstrips  
              - View Demonstrations
- P.M.:     - Practice Task Analysis Section A  
              - Practice Task Analysis Section B

##### Day II:

- A.M.:     - Write Post-test Section A  
              - Write Post-test Section B  
              - Review Post-test Section A/Section B
- P.M.:     - Performance test, Task Analysis Section A  
              - Performance test, Task Analysis Section B  
              - Evaluation of Course

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose/Medication Card System

### INTRODUCTION

#### f) TESTING:

- i) Post Tests: - To be successful on the post tests or written tests you are required to achieve **80%**. Post tests contain only **multiple choice** questions.
- ii) Performance Tests:
  - To be successful an Instructor will evaluate your skill of administering an oral medication in a **laboratory** setting.
  - The mastery of the task analysis results in a successful performance test.
- iii) Rewrites: - If you are unsuccessful on the first post-test in either section you can rewrite a second post-test.
- iv) Retesting: - If you are unsuccessful on the performance test, after further practice, you can be tested again.

#### g) RESOURCES:

- i) Nursing 86 Drug Handbook, Pennsylvania, 1986, Springhouse Corporation.
- ii) Module: Administer an Oral Medication Using a Controlled Dosage/Unit Dose/Medication Card System.
- iii) Reference: A list of reference textbooks is provided on page vii
- iv) Review information from your basic program as necessary eg. identifying the patient, use of the 24 hr. clock.
- v) Blister Pak Card - for practicing administering medication using a Controlled Dosage System.

#### h) COMPLETION:

- i) On completion of the course you will **evaluate** the module on Day II of the workshop.
- ii) You will receive a **certificate** stating you have successfully completed the course.

Administer Oral Medication Using a Controlled Dosage/Unit Dose/Medication Card System

INTRODUCTION

Group Session

Pre-requisite Unit:

Section A:

Section B:

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Administer Oral Medication Using a Controlled Dosage/Unit Dose/Medication Card System

INTRODUCTION

Reference -- Resource Textbooks:

Asperheim, Mary K., and Eisenhauer, Laurel A., The Pharmacologic Basis of Patient Care, 4th Ed., Philadelphia, 1981, W.B. Saunders Co.

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne, Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co.

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**Pre-Requisite Unit:   Systems of Measurement and Mathematics Review**

**Objective 1:**      Identify abbreviations used in systems of measurement.

**Learner Activity:**

**Article:**            Read **Article 1**  
                             "Abbreviations"

**Exercise:**            Complete **Exercise I**  
                             "Abbreviations"

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## Systems of Measurement and Mathematics Review

### Article 1

#### Abbreviations

c. c. (cc.)	cubic centimeter
dr. (ʒ)	dram
g (Gm.)	gram
gr.	grain
L	litre
mg.	milligram
ml.	milliliter
oz. (ʒ)	ounce
tbsp.	tablespoon
tsp.	teaspoon

\*Note difference in abbreviations of grain/gram.

Gustafson, E., Patterson, R., and Sheridan, E., Falconer's The Drug, The Nurse, The Patient, 7th Ed., Philadelphia, 1982, W.B. Saunders Co.

**Systems of Measurement and Mathematics Review**

**Article 1**

**Exercise 1**

**Abbreviations**

Match the abbreviation in Column A with the term in Column B:

**Column A**

1.    \_\_\_   cc.
2.    \_\_\_   dr.
3.    \_\_\_   mg.
4.    \_\_\_   ml.
5.    \_\_\_   oz.
6.    \_\_\_   tbsp.
7.    \_\_\_   gr.

**Column B**

- a)   tablespoon
- b)   ounce
- c)   grain
- d)   milliliter
- e)   dram
- f)   cubic centimeter
- g)   milligram

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# Systems of Measurement and Mathematics Review

## Article 1

### Exercise 1

#### ANSWER SHEET Abbreviations

Match the abbreviation in Column A with the term in Column B:

#### Column A

1. f cc.
2. e dr.
3. g mg.
4. d ml.
5. b oz.
6. a tbsp.
7. c gr.

#### Column B

- a) tablespoon
- b) ounce
- c) grain
- d) milliliter
- e) dram
- f) cubic centimeter
- g) milligram

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**Pre-Requisite Unit:   Systems of Measurement and Mathematics Review**

**Objective 2:**   Review the metric system.

**Learner Activity:**

**Article:**   Read **Article 2**  
"The Metric System"

Read **Article 3**  
"Metric Notations"

**Exercises:**   Complete **Exercise 2**  
"The Metric System"

Complete **Exercise 3**  
"Metric Notations"

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## Systems of Measurement and Mathematics Review

### Article 2

#### The Metric System

##### WEIGHT

1 kilogram	= 1000 gms
1 gram	= 1000 milligrams
1 milligram	= 1000 micrograms
1 microgram	= 0.001 milligram
1 milligram	= 0.001 gram
1 gram	= 0.001 kilogram

##### VOLUME

1 millilitre	= 1 cubic centimetre
1 litre	= 1000 millilitres = 1000 cubic centimeres

Clayton, Bruce D., Squire, Jessie E., and Stock, Yvonne N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co.

## Systems of Measurement and Mathematics Review

### Article 2

#### Exercise 2

#### The Metric System

##### Fill in the Blanks:

1. 1 gram = \_\_\_\_\_ milligrams
2. 1 microgram = \_\_\_\_\_ milligram
3. 1 milligram = 0.001 \_\_\_\_\_
4. 1 \_\_\_\_\_ = 1000 gms
5. 1 \_\_\_\_\_ = 1000 micrograms
6. 1 gram = \_\_\_\_\_ kilogram
7. 1 litre = \_\_\_\_\_ cubic centimetres
8. 1 millilitre = \_\_\_\_\_ cubic centimetre

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## Systems of Measurement and Mathematics Review

### Article 2

#### Exercise 2

#### ANSWER SHEET The Metric System

Fill in the Blanks:

1. 1 gram = 1000 milligrams
2. 1 microgram = 0.001 milligram
3. 1 milligram = 0.001 gram
4. 1 kilogram = 1000 gms
5. 1 milligram = 1000 micrograms
6. 1 gram = 0.001 kilogram
7. 1 litre = 1000 cubic centimetres
8. 1 millilitre = 1 cubic centimetre

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## Systems of Measurement and Mathematics Review

### Article 3

#### Metric Notations

##### Rules:

- Rule 1: Quantity is written in Arabic numerals. (1 - 2 - 3.) eg. 0.5 ml.
- Rule 2: The numerals representing quantity are placed in front of abbreviations. eg. 1.5 ml. **not** ml. 1.5.
- Rule 3: A zero is placed in front of the decimal when it is not preceded by a whole number to emphasize the decimal point. eg. 0.5 ml. **not** .5 ml.
- Rule 4: Fractional points of a unit are expressed in decimal fractions. eg. 0.5 ml. **not** 1/2 ml.
- Rule 5: Unnecessary zeros are omitted.  
0.5 ml. **not** 0.50 ml.

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur, Inc.



## Systems of Measurement and Mathematics Review

### Article 3

#### Exercise 3

#### Metric Notations

Correct the following metric notations:

1. ml. 2.5 \_\_\_\_\_
2. 0.30 ml. \_\_\_\_\_
3. 1/4 ml. \_\_\_\_\_
4. .8 ml. \_\_\_\_\_
5. 000.70 ml. \_\_\_\_\_
6. ml. 4.5 \_\_\_\_\_
7. .3 ml. \_\_\_\_\_

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## Systems of Measurement and Mathematics Review

### Article 3

#### Exercise 3

#### ANSWER SHEET Metric Notations

Correct the following metric notations:

- |               |                |
|---------------|----------------|
| 1. ml. 2.5    | <u>2.5 ml.</u> |
| 2. 0.30 ml.   | <u>.30 ml.</u> |
| 3. 1/4 ml.    | <u>.25 ml.</u> |
| 4. .8 ml.     | <u>0.8 ml.</u> |
| 5. 000.70 ml. | <u>.70 ml.</u> |
| 6. ml. 4.5    | <u>4.5 ml.</u> |
| 7. .3 ml.     | <u>0.3 ml.</u> |

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**Pre-Requisite Unit:   Systems of Measurement and Mathematics Review**

**Objective 3:**      Compare the household, apothecaries and metric systems of measurement.

**Learner Activity:**

**Article:**            Read **Article 4**  
                              "Household, Apothecaries, Metric Systems Comparison"

**Exercise:**            Complete **Exercise 4**  
                              "Systems Comparison"

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## Systems of Measurement and Mathematics Review

### Article 4

#### Household, Apothecaries, Metric System Comparison

Approximate Equivalents to be Memorized:

<u>HOUSEHOLD</u>	<u>APOTHECARIES'</u>	<u>METRIC</u>
<b>Volume, Liquid or Wet</b>		
60 drops or 1 teaspoonful	60 minims or ) 1 fluid dram )	5 milliliters (cc.)
2 tablespoonfuls	= 1 fluid ounce	= 30 milliliters (cc.)
1 measuring cupful (1 glassful)	= 8 fluid ounces	= 240 milliliters or 0.25 liter

#### **Weight or Dry**

1/60 grain	=	1.0 milligram
1 grain	=	60.0 milligrams
15 or 16 grains	=	1.0 gram
1 dram	=	4.0 grams
1 ounce	=	30.0 grams

Gustafson, E., Patterson, R., and Sheridan, E., Falconer's The Drug, The Nurse, The Patient, 7th Ed., Philadelphia, 1982, W.B. Saunders Co.

## Systems of Measurement and Mathematics Review

### Article 4

#### Exercise 4

#### Systems Comparison

Fill in the blanks:

- |                  |   |       |              |
|------------------|---|-------|--------------|
| 1. 1 teaspoonful | = | _____ | dram.        |
| 2. 5 cc.         | = | _____ | drops.       |
| 3. 30 ml.        | = | _____ | ounce.       |
| 4. 8 ounces      | = | _____ | ml.          |
| 5. 1 ounce       | = | _____ | cc.          |
| 6. 1 ounce       | = | _____ | tablespoons. |
| 7. 1 glassful    | = | _____ | ounces.      |
| 8. 1.0 gram      | = | _____ | grains.      |
| 9. 1/60 grain    | = | _____ | ml.          |
| 10. 1 ounce      | = | _____ | grams.       |
| 11. 1 grain      | = | _____ | ml.          |

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Systems of Measurement and Mathematics Review

Article 4

Exercise 4

ANSWER SHEET  
Systems Comparison

Fill in the blanks:

- |                  |   |                 |              |
|------------------|---|-----------------|--------------|
| 1. 1 teaspoonful | = | <u>1</u>        | dram.        |
| 2. 5 cc.         | = | <u>60</u>       | drops.       |
| 3. 30 ml.        | = | <u>1</u>        | ounce.       |
| 4. 8 ounces      | = | <u>240</u>      | ml.          |
| 5. 1 ounce       | = | <u>30</u>       | cc.          |
| 6. 1 ounce       | = | <u>2</u>        | tablespoons. |
| 7. 1 glassful    | = | <u>8</u>        | ounces.      |
| 8. 1.0 gram      | = | <u>15 or 16</u> | grains.      |
| 9. 1/60 grain    | = | <u>1.0</u>      | ml.          |
| 10. 1 ounce      | = | <u>30.0</u>     | grams.       |
| 11. 1 grain      | = | <u>60.0</u>     | ml.          |

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**Pre-Requisite Unit:   Systems of Measurement and Mathematics Review**

**Objective 4:**      Review apothecary notations.

**Learner Activity:**

**Article:**              Read **Article 5**  
                              "Apothecary Notations"

**Exercise:**              Complete **Exercise 5**  
                              "Apothecary Notations"

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# Systems of Measurement and Mathematics Review

## Article 5

### Apothecary Notations

Rule 1: The quantity is written in Roman Numerals.

#### Numerals

<u>Roman</u>	<u>Arabic</u>
$\dot{\text{i}}$	1
$\ddot{\text{ii}}$	2
$\ddot{\text{iii}}$	3
$\dot{\text{iv}}$	4
v	5
$\dot{\text{vi}}$	6
$\ddot{\text{vii}}$	7
$\ddot{\text{viii}}$	8
$\dot{\text{ix}}$	9
x	10
xx	20
xxx	30
l	50
c	100
d	500
m	1000

## Systems of Measurement and Mathematics Review

### Article 5

#### Apothecary Notations

Rule 2: A symbol is placed in front of the quantity.

eg. gr.  $\frac{\text{v}}{\text{v}}$  same level or  $\text{m} \frac{\text{...}}{\text{II}}$

Rule 3: Fractions are expressed as common fractions in arabic numerals. eg.  
gr. 1/4

Rule 4: The symbol ss may be used for 1/2.

eg. Grains 3 1/2 = gr.  $\frac{\text{...}}{\text{IIss}}$

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur Inc.

Systems of Measurement and Mathematics Review

Article 5

Exercise 5

Apothecary Notations

Write the following quantities in apothecary notations:

1. 100 \_\_\_\_\_
2. 2 \_\_\_\_\_
3. 10 \_\_\_\_\_
4. 1000 \_\_\_\_\_
5. 1 \_\_\_\_\_
6. 7 grains \_\_\_\_\_
7. 1/16 of a grain \_\_\_\_\_
8. 10 1/2 grains \_\_\_\_\_

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## Systems of Measurement and Mathematics Review

### Article 5

#### Exercise 5

#### ANSWER SHEET

#### Apothecary Notations

Write the following quantities in apothecary notations:

- |                    |   |
|--------------------|---|
| 1. 100             | <u>c</u>                                  |
| 2. 2               | <u><math>\frac{\cdot\cdot}{II}</math></u> |
| 3. 10              | <u><math>\overline{X}</math></u>          |
| 4. 1000            | <u>m</u>                                  |
| 5. 1               | <u><math>\frac{\cdot}{I}</math></u>       |
| 6. 7 grains        | <u>gr.7</u>                               |
| 7. 1/16 of a grain | <u>gr. 1/16</u>                           |
| 8. 10 1/2 grains   | <u>gr. <math>\overline{Xss}</math></u>    |

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**Pre-Requisite Unit:    Systems of Measurement and Mathematics Review**

**Objective 5:**        Review fractions:

- a) types of fractions
- b) visual examples of fractions
- c) reducing to lowest terms
- d) conversions
- e) adding fractions
- f) subtracting fractions
- g) multiplying fractions
- h) dividing fractions
- i) decimal fractions
- j) adding and subtracting decimal fractions
- k) multiplying decimal fractions
- l) dividing decimal fractions

**Learner Activity:**

**Article:**                Read **Article 6**  
                              "Fractions"

**Exercises:**            Complete **Exercise 6**  
                              "Reducing Fractions"

Complete **Exercise 7**  
"Conversions"

Complete **Exercise 8**  
"Adding Fractions"

Complete **Exercise 9**  
"Subtracting Fractions"

Complete **Exercise 10**  
"Multiplying Fractions"

Complete **Exercise 11**  
"Dividing Fractions"

Complete **Exercise 12**  
"Adding and Subtracting Decimal Fractions"

Complete **Exercise 13**  
"Multiplying Decimal Fractions"

Complete **Exercise 14**  
"Dividing Decimal Fractions"

## Systems of Measurement and Mathematics Review

### Article 6

### Fractions

#### a) Types of Fractions:

Fractions represent a division of a whole number consisting of a denominator and a numerator.

ie.  $\frac{9}{8}$  9 = numerator (how many parts are used)

8 = denominator (how many pieces the whole is divided into)

##### i) Proper Fraction

a fraction whose numerator is smaller than the denominator eg.  $\frac{2}{3}$

##### ii) Improper Fraction

a fraction whose numerator is equal to or larger than the denominator eg.  $\frac{4}{4}$ ,  $\frac{9}{3}$

##### iii) Mixed Number

a fraction preceeded by a whole number eg.  $2\frac{3}{4}$

##### iv) Complex Fraction

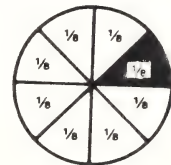
a fraction in the numerator, denominator or both.

$$\frac{\frac{16}{2}}{\frac{3}{4}}, \frac{\frac{1}{2}}{\frac{3}{4}}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

#### b) Visual Examples of Fractions:

- i)  $\frac{1}{8}$  means that the whole circle is divided into 8 parts; one of the parts is being used  
- the larger the denominator number, the smaller the portion.



$\frac{1}{8}$

#### Example 1

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co.

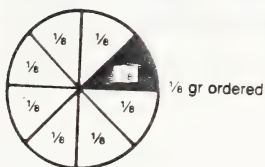
## Systems of Measurement and Mathematics Review

### Article 6

### Fractions

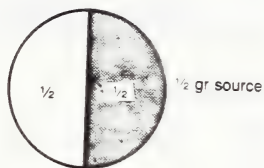
#### b) Visual Examples of Fractions:

- ii)  $\frac{1}{8}$  gr. of a medication is ordered. You have on the shelf  $\frac{1}{2}$  gr.



$\frac{1}{8}$  gr. Ordered

Example 2a



$\frac{1}{2}$  gr. Source

Example 2b

You have to decide if the portion ordered is larger or smaller than what you have on the shelf.

ANSWER:  $\frac{1}{8}$  is smaller than the drug source of  $\frac{1}{2}$ , thus it would be less than 1 tablet.

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co.

## Systems of Measurement and Mathematics Review

### Article 6

#### Fractions

#### c) Reducing to Lowest Terms:

##### RULES

1. The numerator and denominator must be divisible by a whole number.
2. The lowest common denominator is the smallest number into which denominators found in the fractions are divisible.

##### Example 3

$$\frac{8}{12} - (\text{divide by } 4)$$

$$\frac{2}{3}$$

ANSWER:  $\frac{8}{12}$  reduced to lowest terms =  $\frac{2}{3}$ .

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.



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Article 6

Exercise 6

Reducing Fractions

Reduce the following fractions to lowest terms:

1.  $\frac{10}{20}$  = \_\_\_\_\_

2.  $\frac{52}{4}$  = \_\_\_\_\_

3.  $\frac{62}{19}$  = \_\_\_\_\_

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 6

ANSWER SHEET  
Reducing Fractions

Reduce the following fractions to lowest terms:

$$1. \quad \frac{10}{20} = \frac{1}{2}$$

$$2. \quad \frac{52}{4} = \underline{13}$$

$$3. \quad \frac{62}{19} = \underline{3 \frac{5}{19}}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 6

Reducing Fractions

Reduce the following fractions to lowest terms:

4.  $\frac{100}{\frac{1}{3}}$  = \_\_\_\_\_

5.  $\frac{7}{21}$  = \_\_\_\_\_

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 6

ANSWER SHEET  
Reducing Fractions

Reduce the following fractions to lowest terms:

$$4. \quad \frac{100}{\frac{1}{3}} = \frac{300}{1}$$

$$5. \quad \frac{7}{21} = \frac{1}{3}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Systems of Measurement and Mathematics Review

### Article 6

### Fractions

#### **d) Conversions:**

- i) To convert a Mixed Number to an Improper Fraction:

EXAMPLE 4      $3 \frac{5}{6}$

#### RULES

$$3 \times 6 = 18$$

$$18 + 5 = 23$$

$$\frac{23}{6}$$

1. Multiply the whole number by the denominator of the fraction.
2. Add this total to the numerator.
3. Place the total over the denominator.

ANSWER:      $3 \frac{5}{6} = \frac{23}{6}$

- ii) To convert a Complex Fraction to a Whole Number, Proper or Improper Fraction:

- 1) Divide the numerator by the denominator

#### EXAMPLE 5

#### RULES

$$\frac{1}{\frac{4}{10}}$$

$$10$$

$$\frac{1}{4} \quad \frac{10}{1}$$

$$\frac{1}{4} \times \frac{1}{10}$$

$$\frac{1}{40}$$

1. Change the division sign to a multiplication sign
2. Invert the divisor - number by which you divide  
and
3. Multiply the numerators, multiply the denominators

ANSWER      $\frac{1}{\frac{4}{10}} = \frac{1}{40}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 7

Conversions

Convert the following mixed numbers to improper fractions:

1.  $3 \frac{1}{7}$  = \_\_\_\_\_

2.  $5 \frac{2}{6}$  = \_\_\_\_\_

3.  $7 \frac{1}{6}$  = \_\_\_\_\_

Systems of Measurement and Mathematics Review

Article 6

Exercise 7

ANSWER SHEET  
Conversions

Convert the following mixed numbers to improper fractions:

$$1. \quad 3 \frac{1}{7} = \frac{22}{7}$$

$$2. \quad 5 \frac{2}{6} = \frac{32}{6}$$

$$3. \quad 7 \frac{1}{6} = \frac{43}{6}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.



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Article 6

Exercise 7

Conversions

Convert the following complex fractions to whole numbers, proper or improper fractions:

4.  $\frac{\frac{1}{7}}{12}$  = \_\_\_\_\_

5.  $\frac{\frac{12}{14}}{\frac{20}{51}}$  = \_\_\_\_\_

6.  $\frac{\frac{1}{2}}{2}$  = \_\_\_\_\_

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 7

ANSWER SHEET  
Conversions

Convert the following complex fractions to whole numbers, proper or improper fractions:

$$4. \frac{\frac{1}{7}}{12} = \frac{1}{84}$$

$$5. \frac{\frac{12}{14}}{\frac{20}{51}} = 2 \frac{13}{70}$$

$$6. \frac{\frac{1}{2}}{2} = \frac{1}{4}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Systems of Measurement and Mathematics Review

### Article 6

#### Fractions

#### e) Adding Fractions When:

##### i) Denominators are the same

EXAMPLE 6       $\frac{1}{6} + \frac{1}{6}$

$$\begin{array}{r} 1+1 = 2 \\ \frac{2}{6} \\ \frac{1}{3} \end{array}$$

ANSWER     $\frac{1}{6} + \frac{1}{6} = \frac{1}{3}$

##### RULES

1. Add all numerators.
2. Place the total number over the common denominator.
3. Reduce to lowest possible terms.

##### ii) Denominators are uncommon

EXAMPLE 7       $\frac{1}{3} + \frac{1}{6}$

$$\frac{1}{3} \times \frac{2}{2} + \frac{1}{6}$$

(6 is the lowest  
common denominator)

$$2 + 1 = 3$$

$$\frac{3}{6}$$

$$\frac{1}{2}$$

ANSWER     $\frac{1}{3} + \frac{1}{6} = \frac{1}{2}$

##### RULES

1. Convert the fractions so that there is a common denominator.
2. Add the numerators.
3. Place the number over the common denominator.
4. Reduce to lowest possible terms.

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Systems of Measurement and Mathematics Review

### Article 6

### Fractions

#### e) Adding Fractions When:

##### iii) Mixed numbers are in fractions

EXAMPLE 8  $1 \frac{1}{2} + 2 \frac{1}{3}$

$$\frac{3}{2} + \frac{7}{3}$$

$$\frac{3}{2} \times \frac{3}{3} + \frac{7}{3} \times \frac{2}{2}$$

(6 is the common denominator)

$$\frac{9}{6} + \frac{14}{6}$$

$$23$$

$$\frac{23}{6}$$

$$3 \frac{5}{6}$$

#### RULES

1. Convert each mixed number to an improper fraction.
2. Convert the fractions so that there is a common denominator.
3. Add the numerators.
4. Place the total numbers over the common denominator.
5. Reduce to lowest possible terms.

ANSWER  $1 \frac{1}{2} + 2 \frac{1}{3} = 3 \frac{5}{6}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 8

Adding Fractions

Add the following fractions:

1.  $\frac{1}{7} + \frac{2}{7} = \underline{\hspace{2cm}}$

2.  $10 \frac{1}{9} + 12 \frac{1}{6} = \underline{\hspace{2cm}}$

3.  $21 \frac{10}{11} + 14 \frac{1}{6} = \underline{\hspace{2cm}}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 8

ANSWER SHEET  
Adding Fractions

Add the following fractions:

$$1. \quad \frac{1}{7} + \frac{2}{7} = \underline{\frac{3}{7}}$$

$$2. \quad 10 \frac{1}{9} + 12 \frac{1}{6} = \underline{22 \frac{5}{18}}$$

$$3. \quad 21 \frac{10}{11} + 14 \frac{1}{6} = \underline{36 \frac{5}{66}}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 8

Adding Fractions

Add the following fractions:

4.  $6 \frac{1}{3} + 3 \frac{1}{6} = \underline{\hspace{2cm}}$

5.  $\frac{3}{4} + \frac{1}{5} = \underline{\hspace{2cm}}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.



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Article 6

Exercise 8

ANSWER SHEET  
Adding Fractions

Add the following fractions:

$$4. \quad 6 \frac{1}{3} + 3 \frac{1}{6} = \underline{9 \frac{1}{2}}$$

$$5. \quad \frac{3}{4} + \frac{1}{5} = \underline{\frac{19}{20}}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Systems of Measurement and Mathematics Review

### Article 6

#### Fractions

#### f) Subtracting Fractions when:

##### i) Denominators are the same

EXAMPLE 9     $\frac{3}{4} - \frac{1}{4}$

$$3 - 1 = 2$$

$$\frac{2}{4}$$

$$\frac{1}{2}$$

ANSWER     $\frac{3}{4} - \frac{1}{4} = \frac{1}{2}$

#### RULES

1. Subtract the smallest numerator from the largest numerator.
2. Place the remaining number over the common denominator.
3. Reduce to lowest terms.

##### ii) Denominators are uncommon

EXAMPLE 10     $\frac{5}{12} - \frac{1}{4}$

$$\frac{5}{12} - \frac{1}{4} \times \frac{3}{3}$$

(12 is the lowest common denominator)

$$\frac{5}{12} - \frac{3}{12}$$

$$5 - 3 = 2$$

$$\frac{2}{12}$$

$$\frac{1}{6}$$

ANSWER     $\frac{5}{12} - \frac{1}{4} = \frac{1}{6}$

#### RULES

1. Convert the fractions so that there is a common denominator.
2. Subtract the smallest numerator from the largest numerator.
3. Place the remaining number over the common denominator.
4. Reduce to lowest possible terms.

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Systems of Measurement and Mathematics Review

### Article 6

### Fractions

#### f) Subtracting Fractions when:

##### iii) Mixed numbers are in fractions

EXAMPLE 11     $2 \frac{1}{4} - 1 \frac{1}{3}$

$$\frac{9}{4} - \frac{4}{3}$$

$$\frac{9}{4} \times \frac{3}{3} - \frac{4}{3} \times \frac{4}{4}$$

$$\frac{27}{12} - \frac{16}{12}$$

(12 is the common denominator)

$$27 - 16 = 11$$

$$\frac{11}{12}$$

$$\frac{11}{12}$$

ANSWER     $2 \frac{1}{4} - 1 \frac{1}{3} = \underline{\underline{\frac{11}{12}}}$

#### RULES

1. Convert each mixed number to a proper fraction.
2. Convert the fractions so that there is a common denominator.
3. Subtract the numerators.
4. Place the total over the common denominator.
5. Reduce to lowest possible terms.

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 9

Subtracting Fractions

Subtract the following fractions. Reduce to lowest possible terms:

1.  $\frac{11}{12} - \frac{4}{12} = \underline{\hspace{2cm}}$

2.  $\frac{21}{9} - \frac{4}{6} = \underline{\hspace{2cm}}$

3.  $1\frac{1}{25} - \frac{1}{10} = \underline{\hspace{2cm}}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 9

ANSWER SHEET  
Subtracting Fractions

Subtract the following fractions. Reduce to lowest possible terms:

$$1. \quad \frac{11}{12} - \frac{4}{12} = \underline{\frac{7}{12}}$$

$$2. \quad \frac{21}{9} - \frac{4}{6} = \underline{1 \frac{2}{3}}$$

$$3. \quad 1 \frac{1}{25} - \frac{1}{10} = \underline{\frac{47}{50}}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 9

Subtracting Fractions

Subtract the following fractions. Reduce to lowest possible terms:

4.  $\frac{9}{16} - \frac{3}{10} = \underline{\hspace{2cm}}$

5.  $21\frac{9}{15} - 17\frac{3}{4} = \underline{\hspace{2cm}}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 9

ANSWER SHEET  
Subtracting Fractions

Subtract the following fractions. Reduce to lowest possible terms:

$$4. \quad \frac{9}{16} - \frac{3}{10} = \frac{21}{80}$$

$$5. \quad 21 \frac{9}{15} - 17 \frac{3}{4} = 3 \frac{17}{20}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.



## Systems of Measurement and Mathematics Review

### Article 6

### Fractions

#### **g) Multiplying Fractions:**

##### **i) Multiplying fractions:**

EXAMPLE 12     $\frac{3}{4} \times \frac{10}{12}$

$$\frac{3}{4} \times \frac{10}{12} \begin{smallmatrix} 5 \\ 6 \end{smallmatrix}$$

$$\frac{3}{4} \begin{smallmatrix} 1 \\ 4 \end{smallmatrix} \times \frac{5}{6} \begin{smallmatrix} 5 \\ 6 \end{smallmatrix} \begin{smallmatrix} 2 \\ 2 \end{smallmatrix}$$

(3 and 6 are divided  
by 2)

$$1 \times 5 = 5$$

$$4 \times 2 = 8$$

$$\frac{5}{8}$$

$$\frac{5}{8}$$

ANSWER     $\frac{3}{4} \times \frac{10}{12} = \underline{\underline{\frac{5}{8}}}$

#### RULES

1. If possible reduce all fractions to lowest terms.
2. Then Cross Cancel as many numbers as possible. That is divide both numerator and denominator by the same number.
3. Multiply all numerators.
4. Multiply all denominators.
5. Place the total of the numerators over the total of the denominators.
6. Reduce to lowest possible terms.

## Systems of Measurement and Mathematics Review

### Article 6

#### Fractions

#### **g) Multiplying Fractions:**

##### ii) Multiplying mixed numbers

EXAMPLE 13    $2 \frac{1}{3} \times 4 \frac{1}{5}$

$$\frac{7}{3} \times \frac{21}{5}$$

$$\frac{7}{\cancel{3}_1} \times \frac{\overset{7}{\cancel{21}}}{5}$$

(3, 21, are divided by 3)

$$7 \times 7 = 49$$

$$1 \times 5 = 5$$

$$\frac{49}{5}$$

$$9 \frac{4}{5}$$

ANSWER    $2 \frac{1}{3} \times 4 \frac{1}{5} = 9 \frac{4}{5}$

#### RULES

1. Convert each mixed number to an improper fraction.
2. If possible reduce all fractions to lowest possible terms. Cross cancel.
3. Multiply all numerators.
4. Multiply all denominators.
5. Place the total of the numerators over the total of the denominators.
6. Reduce to lowest possible terms.

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 10

Multiplying Fractions

Multiply the following fractions. Reduce to lowest possible terms:

1.  $6 \frac{1}{3} \times 2 \frac{1}{8} = \underline{\hspace{2cm}}$

2.  $\frac{2}{11} \times \frac{3}{17} = \underline{\hspace{2cm}}$

3.  $10 \frac{11}{17} \times 1 \frac{7}{8} = \underline{\hspace{2cm}}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 10

ANSWER SHEET  
Multiplying Fractions

Multiply the following fractions. Reduce to lowest possible terms:

$$1. \quad 6 \frac{1}{3} \times 2 \frac{1}{8} = \underline{13 \frac{11}{24}}$$

$$2. \quad \frac{2}{11} \times \frac{3}{17} = \underline{\frac{6}{187}}$$

$$3. \quad 10 \frac{11}{17} \times 1 \frac{7}{8} = \underline{19 \frac{131}{136}}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 10

Multiplying Fractions

Multiply the following fractions. Reduce to lowest possible terms:

4.  $\frac{21}{9} \times \frac{3}{8} = \underline{\hspace{2cm}}$

5.  $25 \times \frac{3}{4} = \underline{\hspace{2cm}}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 10

ANSWER SHEET

Multiplying Fractions

Multiply the following fractions. Reduce to lowest possible terms:

$$4. \quad \frac{21}{9} \times \frac{3}{8} = \frac{7}{8}$$

$$5. \quad 25 \times \frac{3}{4} = 18 \frac{3}{4}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Systems of Measurement and Mathematics Review

### Article 6

### Fractions

#### h) Dividing Fractions

##### i) Divide a fraction by a fraction

EXAMPLE 14     $\frac{3}{4} \div \frac{1}{2}$

$$\frac{3}{4} \times \frac{2}{1}$$

$$\frac{3}{4} \times \frac{2}{1}$$

$$\frac{3}{\cancel{4}^2} \times \frac{\cancel{2}^1}{1}$$

$$3 \times 1 = 3$$

$$2 \times 1 = 2$$

$$\frac{3}{2}$$

$$\frac{3}{2} = 1 \frac{1}{2}$$

#### RULES

1. Invert the divisor (the dividing fraction).  
and
2. Multiply the fraction. Change the division sign to a multiplication sign.
3. Cross cancel if possible.
4. Multiply the numerators.
5. Multiply the denominators.
6. Place the total of the numerators over the total of the denominators.
7. Reduce to lowest possible terms.

ANSWER     $\frac{3}{4} \div \frac{1}{2} = \frac{3}{2} = 1 \frac{1}{2}$



## Systems of Measurement and Mathematics Review

### Article 6

### Fractions

#### h) Dividing Fractions

##### ii) Divide mixed numbers

EXAMPLE 15    $2 \frac{1}{5} \div 3 \frac{1}{2}$

$$\frac{11}{5} \div \frac{7}{2}$$

$$\frac{11}{5} \div \frac{2}{7}$$

$$\frac{11}{5} \times \frac{2}{7}$$

$$\frac{11}{5} \times \frac{2}{7}$$

$$11 \times 2 = 22$$

$$5 \times 7 = 35$$

$$\frac{22}{35}$$

$$\frac{22}{35}$$

ANSWER    $2 \frac{1}{5} \div 3 \frac{1}{2} = \frac{22}{35}$

#### RULES

1. Convert all mixed numbers to improper fractions.

AND  
2. Invert the divisor.

3. Multiply the fractions. Change the division sign to a multiplication sign.

4. Cross cancel if possible.

5. Multiply the numerators.

6. Multiply the denominators

7. Place the total of the numerators over the total of the denominators.

8. Reduce to lowest possible terms.

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Exercise 11

Dividing Fractions

Divide the following fractions. Reduce to lowest possible terms:

1.  $\frac{3}{7} \div \frac{1}{3} = \underline{\hspace{2cm}}$

2.  $2\frac{4}{9} \div \frac{1}{6} = \underline{\hspace{2cm}}$

3.  $\frac{14}{9} \div \frac{1}{3} = \underline{\hspace{2cm}}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Article 6

Exercise 11

ANSWER SHEET

Dividing Fractions

Divide the following fractions. Reduce to lowest possible terms:

$$1. \quad \frac{3}{7} \div \frac{1}{3} = \underline{1 \frac{2}{7}}$$

$$2. \quad 2 \frac{4}{9} \div \frac{1}{6} = \underline{14 \frac{2}{3}}$$

$$3. \quad \frac{14}{9} \div \frac{1}{3} = \underline{4 \frac{2}{3}}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

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Exercise 11

Dividing Fractions

Divide the following fractions. Reduce to lowest possible terms:

4.  $17 \frac{1}{8} \div 14 \frac{2}{4} = \underline{\hspace{2cm}}$

5.  $32 \frac{1}{3} \div 1 \frac{1}{4} = \underline{\hspace{2cm}}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 11

ANSWER SHEET

Dividing Fractions

Divide the following fractions. Reduce to lowest possible terms:

$$4. \quad 17 \frac{1}{8} \div 14 \frac{2}{4} = 1 \frac{21}{116}$$

$$5. \quad 32 \frac{1}{3} \div 1 \frac{1}{4} = 25 \frac{13}{15}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Systems of Measurement and Mathematics Review

### Article 6

### Fractions

#### i) Decimal Fractions:

##### i) Decimal Fraction

##### Example 16

$$\frac{1}{4}$$

$$4 \overline{) 0.25} \quad \underline{1.0}$$

##### RULES

1. Numerator is divided by a denominator. Fractions in decimal form have no written denominators.

ANSWER 0.25 is a Decimal Fraction.

2. In a decimal fraction the denominator is 10 or some multiple of 10 and is indicated by a decimal sign or period called a DECIMAL.
  3. Whole numbers are written to the left of the decimal.
  4. Fractions are written to the right of the decimal.
  5. Decimal fractions are read left to right.
111. = one hundred eleven  
1. = one
- .465 = four hundred sixty five thousandths ( $\frac{465}{1000}$ )
- .1 = one tenth  
11. = eleven  
.01 = one hundredth  
3.456 = three decimal, four, five, six.

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Systems of Measurement and Mathematics Review

### Article 6

### Fractions

#### j) Adding and Subtracting Decimal Fractions

##### EXAMPLES 17A, B

<u>ADDITION</u>		<u>SUBTRACTION</u>	<u>RULES</u>
<u>17A</u>	$3.41 + 6.151 + .614$	<u>17B</u>	$10.452 - 9.542$
	$\begin{array}{r} 3.41 \\ 6.151 \\ .614 \\ \hline \end{array}$		$\begin{array}{r} 10.452 \\ 9.542 \\ \hline \end{array}$
	$\begin{array}{r} 3.410 \\ 6.151 \\ 0.614 \\ \hline \end{array}$		$\begin{array}{r} 10.452 \\ 9.542 \\ \hline .910 \end{array}$
	$\begin{array}{r} 3.410 \\ 6.151 \\ +0.614 \\ \hline 10.175 \end{array}$		$\begin{array}{r} 10.452 \\ -9.542 \\ \hline .910 \end{array}$
	See above	See above	
	answer not less than one	$\begin{array}{r} 10.452 \\ -9.542 \\ \hline 0.910 \end{array}$	

##### ANSWERS:

$$\begin{array}{l} \underline{17A} \quad 3.41 + 6.151 + .614 = 10.175 \\ \underline{17B} \quad 10.452 - 9.542 = \underline{0.910} \end{array}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.



Systems of Measurement and Mathematics Review

Article 6

Exercise 12

Adding and Subtracting Decimal Fractions

Add the following decimal fractions:

1.  $2.148 + 1.961$  = \_\_\_\_\_

2.  $0.0014 + 0.0456$  = \_\_\_\_\_

3.  $591.16 + 76.35$  = \_\_\_\_\_

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 12

ANSWER SHEET

Adding and Subtracting Decimal Fractions

Add the following decimal fractions:

1.  $2.148 + 1.961 = \underline{4.109}$

2.  $0.0014 + 0.0456 = \underline{0.047}$

3.  $591.16 + 76.35 = \underline{667.51}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 12

Adding and Subtracting Decimal Fractions

Subtract the following decimal fractions:

1.  $1453.4 - 959.412 = \underline{\hspace{2cm}}$

2.  $12.741 - 11.992 = \underline{\hspace{2cm}}$

3.  $0.00927 - 0.004 = \underline{\hspace{2cm}}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 12

ANSWER SHEET

Adding and Subtracting Decimal Fractions

Subtract the following decimal fractions:

$$1. \quad 1453.4 - 959.412 \quad = \quad \underline{493.988}$$

$$2. \quad 12.741 - 11.992 \quad = \quad \underline{0.749}$$

$$3. \quad 0.00927 - 0.004 \quad = \quad \underline{0.00527}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Systems of Measurement and Mathematics Review

### Article 6

### Fractions

#### k) Multiplying Decimal Fractions:

**\*be sure to correctly place the decimal**

##### EXAMPLE 18

$$18.96 \times 1.41$$

Multiplicand is 18.96  
number of decimal places is 2  
to the left

$$\begin{array}{r} 18.96 \rightarrow \text{MULTIPLICAND} - \\ \times \quad 1.41 \\ \hline \end{array}$$

Multiplier is 1.41  
number of decimal places is 2  
to the left

$$\begin{array}{r} 18.96 \\ \times \quad 1.41 \rightarrow \text{MULTIPLIER} \\ \hline \end{array}$$

$$\begin{array}{r} 18.96 \quad 2 \text{ decimal places} \\ 1.41 \quad + 2 \text{ decimal places} \\ \hline 4 \text{ decimal places to} \\ \text{the left.} \end{array}$$

$$\begin{array}{r} 18.96 \\ \times \quad 1.41 \\ \hline 1896 \\ 7584 \\ 1896 \\ \hline 26.7336 \end{array} \begin{array}{l} \text{decimal moved 4} \\ \text{places to the left} \end{array}$$

$$\text{ANSWER } 18.96 \times 1.41 = 26.7336$$

##### RULES

1. Count the number of places to the right of the decimal in the multiplicand. (number to be multiplied)
2. Count the number of places to the right of the decimal in the multiplier. (number the multiplicand is multiplied by) the multiplier is the bottom number if expressed as:
3. Add the number of decimal places.
4. Use this number to count from left to right to correctly place the decimal.

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 13

Multiplying Decimal Fractions

Multiply the following decimal fractions:

1.  $0.46 \times 1.21$  = \_\_\_\_\_

2.  $21.967 \times 14.304$  = \_\_\_\_\_

3.  $2.46 \times 8.71$  = \_\_\_\_\_

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 13

ANSWER SHEET

Multiplying Decimal Fractions

Multiply the following decimal fractions:

$$1. \quad 0.46 \times 1.21 \quad = \quad \underline{0.5566}$$

$$2. \quad 21.967 \times 14.304 \quad = \quad \underline{314.215968}$$

$$3. \quad 2.46 \times 8.71 \quad = \quad \underline{21.4266}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 13

Multiplying Decimal Fractions

Multiply the following decimal fractions:

4.  $5.15 \times 11.06$  = \_\_\_\_\_

5.  $0.0042 \times 0.0029$  = \_\_\_\_\_

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.



Systems of Measurement and Mathematics Review

Article 6

Exercise 13

ANSWER SHEET

Multiplying Decimal Fractions

Multiply the following decimal fractions:

$$4. \quad 5.15 \times 11.06 \quad = \quad \underline{56.959}$$

$$5. \quad 0.0042 \times 0.0029 \quad = \quad \underline{0.00001218}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Systems of Measurement and Mathematics Review

### Article 6

### Fractions

#### 1) Dividing Decimal Fractions:

**\*be sure to correctly place the decimal**

EXAMPLE 19  $96.5620 \div 4.1$

#### RULES

$4.1 \overline{)96.5620}$

- 4.1 is the divisor
- 4.1 move the decimal once
- 41 is the whole number

- 96.5620 is the dividend
- move the decimal once
- 96.5620
- 965.620

$\begin{array}{r} 23.551 \\ 41 \overline{)965.620} \end{array}$

$\begin{array}{r} 123 \\ 226 \\ 205 \\ 212 \\ 205 \\ 70 \\ 41 \\ 290 \end{array}$

1. Move the decimal in the divisor to make a whole number.  
The divisor is the number by which the dividend is divided to give the answer.
2. Move the decimal in the dividend in the same number of places.  
- the dividend is the number that is being divided.
3. The decimal in the answer is  $\frac{82}{145}$  located directly above the decimal in the dividend.
4. Zeros may be added to the dividend to extend the number of places after the decimal.

ANSWER  $96.5620 \div 4.1 = \underline{23.551}$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 14

Dividing Decimal Fractions

Divide the following decimal fractions:

1.  $17.3 \div 0.09$  = \_\_\_\_\_

2.  $42.11 \div 38.1$  = \_\_\_\_\_

3.  $10.5 \div 2.6$  = \_\_\_\_\_

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 14

ANSWER SHEET

Dividing Decimal Fractions

Divide the following decimal fractions:

$$1. \quad 17.3 \div 0.09 \quad = \quad \underline{192.222}$$

$$2. \quad 42.11 \div 38.1 \quad = \quad \underline{1.105}$$

$$3. \quad 10.5 \div 2.6 \quad = \quad \underline{4.038}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 14

Dividing Decimal Fractions

Divide the following decimal fractions:

4.  $1.75 \div 0.32$  = \_\_\_\_\_

5.  $100.404 \div 51.2$  = \_\_\_\_\_

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 6

Exercise 14

ANSWER SHEET

Dividing Decimal Fractions

Divide the following decimal fractions:

$$4. \quad 1.75 \div 0.32 = \underline{5.469}$$

$$5. \quad 100.404 \div 51.2 = \underline{1.961}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

**Pre-Requisite Unit:   Systems of Measurement and Mathematics Review**

**Objective 6:**      Demonstrate the ability to solve problems using the ratio proportion method.

**Learner Activity:**

**Article:**            Read **Article 7**  
                             "Ratio-Proportion Method"

**Exercise:**            Complete **Exercise 15**  
                             "Ratio-Proportion Method"

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## Systems of Measurement and Mathematics Review

### Article 7

#### Ratio - Proportion Method

#### ii) Ratio-Proportion method examples of problem solving

##### EXAMPLE 21

$$60 \text{ ml.} = \underline{\hspace{1cm}} \text{ oz.}$$

We know that  $30 \text{ ml.} = 1 \text{ oz.}$

Form a ratio that compares milliliters (ml.) to ounces (oz.)

$$\frac{30 \text{ ml.}}{1 \text{ oz.}} \text{ forms the ratio } \frac{30}{1}$$

We know that there is 60 milliliters but we do not know how many ounces. We'll use the letter "s" to represent this number.

$$\frac{60 \text{ ml.}}{s \text{ oz.}} \text{ forms the ratio } \frac{60}{s}$$

Now we can equate the 2 ratios and solve the problem:

$$\begin{array}{ccc} \downarrow & & \downarrow \\ \frac{60 \text{ (ml.)}}{s \text{ (oz.)}} & = & \frac{30 \text{ (ml.)}}{1 \text{ oz.}} \\ \uparrow & & \uparrow \end{array}$$

- note that corresponding terms are matched

$$\frac{60}{s} = \frac{30}{1}$$

- equate the ratios

$$30 \times s = 60 \times 1$$

- cross multiply to

$$30s = 60$$

- form an equation

$$30 \times \frac{1}{30} s = 60 \times \frac{1}{30}$$

- solve the equation

$$s = \frac{60}{30}$$

$$\underline{s = 2}$$

ANSWER  $60 \text{ ml.} = \underline{2} \text{ oz.}$

Systems of Measurement and Mathematics Review

Article 7

Exercise 15

Ratio-Proportion Method

Convert the following to the appropriate system of measurement:

1. 2 g = gr. \_\_\_\_\_

2. 10 ml. = \_\_\_\_\_ tsp.

3. 60 ml. = \_\_\_\_\_ tbsp.

4. 2 oz. = \_\_\_\_\_ ml.

5. 500 mg. = \_\_\_\_\_ Gm.

6. 0.4 Gm. = \_\_\_\_\_ mg.

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Systems of Measurement and Mathematics Review

Article 7

Exercise 15

ANSWER SHEET

Ratio-Proportion Method

Convert the following to the appropriate system of measurement:

1. 2 g = gr. 30 - 32

2. 10 ml. = 2 tsp.

3. 60 ml. = 4 tbsp.

4. 2 oz. = 60 ml.

5. 500 mg. = 0.5 Gm.

6. 0.4 Gm. = 400 mg.

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Systems of Measurement and Mathematics Review

Article 7

Exercise 15

Ratio-Proportion Method

Convert the following to the appropriate system of measurement:

7. gr.  $\frac{1}{4}$  = \_\_\_\_\_ mg.

8. 100 mg. = gr. \_\_\_\_\_

9. gr.  $\frac{1}{6}$  = \_\_\_\_\_ mg.

10. 54 g = \_\_\_\_\_ mg.

11. dr. = \_\_\_\_\_ ml.

12. 90 mg. = \_\_\_\_\_ g

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur, Inc.

Systems of Measurement and Mathematics Review

Article 7

Exercise 15

ANSWER SHEET

Ratio-Proportion Method

Convert the following to the appropriate system of measurement:

$$7. \text{ gr. } \frac{1}{4} = \underline{15} \text{ mg.}$$

$$8. 100 \text{ mg.} = \text{gr. } \underline{1 \frac{1}{2}}$$

$$9. \text{ gr. } \frac{1}{6} = \underline{10} \text{ mg.}$$

$$10. 54 \text{ g} = \underline{5,4000} \text{ mg.}$$

$$11. \text{ dr.} = \underline{1} \text{ ml.}$$

$$12. 90 \text{ mg.} = \underline{0.09} \text{ g}$$

Systems of Measurement and Mathematics Review

Article 7

Exercise 15

Ratio-Proportion Method

Convert the following to the appropriate system of measurement:

13. 400 mg. = \_\_\_\_\_ g

14. 0.1 g = \_\_\_\_\_ mg.

15. 7 ml. = \_\_\_\_\_ cc.

16. 5 cc. = \_\_\_\_\_ ml.

17. 0.25 L = \_\_\_\_\_ ml.

18. 95 ml. = \_\_\_\_\_ L

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Systems of Measurement and Mathematics Review

### Article 7

#### Exercise 15

#### ANSWER SHEET

#### Ratio-Proportion Method

Convert the following to the appropriate system of measurement:

$$13. \ 400 \text{ mg.} \quad = \quad \underline{0.4} \text{ g}$$

$$14. \ 0.1 \text{ g} \quad = \quad \underline{100} \text{ mg.}$$

$$15. \ 7 \text{ ml.} \quad = \quad \underline{7} \text{ cc.}$$

$$16. \ 5 \text{ cc.} \quad = \quad \underline{5} \text{ ml.}$$

$$17. \ 0.25 \text{ L} \quad = \quad \underline{250} \text{ ml.}$$

$$18. \ 95 \text{ ml.} \quad = \quad \underline{0.095} \text{ L}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Article 7

Exercise 15

Ratio-Proportion Method

Convert the following to the appropriate system of measurement:

19. 50 cc. = \_\_\_\_\_ ml.

20. 1010 mg. = \_\_\_\_\_ g

21. 5.3 g = \_\_\_\_\_ mg.

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.



Systems of Measurement and Mathematics Review

Article 7

Exercise 15

ANSWER SHEET

Ratio-Proportion Method

Convert the following to the appropriate system of measurement:

19. 50 cc. = 50 ml.

20. 1010 mg. = 1.01 g

21. 5.3 g = 5,300 mg.

**Systems of Measurement and Mathematics Review**

**Mini-Quiz**  
**Pre-requisite Unit**

Match the abbreviation in Column A with the term in Column B:

<u>Column A</u>	<u>Column B</u>
1. _____ cc.	a) millilitre
2. _____ ml.	b) milligram
3. _____ mg.	c) ounce
4. _____ oz.	d) cubic centimetre

**Fill in the blanks:**

5. 1 gram = \_\_\_\_\_ milligrams
6. 1 milligram = \_\_\_\_\_ gram
7. 1 millilitre = \_\_\_\_\_ cubic centimetre
8. 1 grain = \_\_\_\_\_ milligrams
9. 1 oz. = \_\_\_\_\_ cc.

**Write the following in apothecary notations:**

10. 10 = \_\_\_\_\_
11.  $\frac{1}{18}$  of a grain = \_\_\_\_\_
12.  $2\frac{1}{2}$  grains = \_\_\_\_\_

**Add, subtract, multiply or divide the following fractions (reduce to lowest terms):**

13.  $1\frac{5}{6} + 3\frac{2}{3} =$  \_\_\_\_\_
14.  $4\frac{6}{7} - 3\frac{1}{3} =$  \_\_\_\_\_

## Systems of Measurement and Mathematics Review

### Mini-Quiz Pre-requisite Unit

Add, subtract, multiply or divide the following fractions (reduce to lowest terms):

15.  $10 \frac{1}{2} \times 3 \frac{1}{4} =$  \_\_\_\_\_

16.  $7 \frac{2}{8} \div 3 \frac{1}{4} =$  \_\_\_\_\_

Add, subtract, multiply, or divide the following decimals:

17.  $5.255 + 0.9162 =$  \_\_\_\_\_

18.  $27.363 - 10.154 =$  \_\_\_\_\_

19.  $0.0205 \times 27.4 =$  \_\_\_\_\_

20.  $3.596 \div 0.1 =$  \_\_\_\_\_

Solve the following equations:

21. 90 ml. = \_\_\_\_\_ oz.

22. 90 mg. = \_\_\_\_\_ g

23. 15 g = \_\_\_\_\_ mg.

24. gr. 10 = \_\_\_\_\_ mg.

25. 10 cc. = \_\_\_\_\_ ml.

Your score \_\_\_\_\_ Successful Score:  $\frac{20}{25}$  (80%)  
25 (5 wrong allowed)

\* Note: Review each incorrect answer by corresponding objective.

\*\* Note: Review **all** of the Pre-requisite unit if you had more than 5 answers incorrect.

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur Inc.

Gustafson, E., Patterson, R., and Sheridan E., Falconer's The Drug, The Nurse, The Patient, 7th Ed., Philadelphia, 1982, W.B. Saunders Co.

Systems of Measurement and Mathematics Review

Pre-requisite Unit

Mini-Quiz

ANSWER SHEET

<u>Answer</u>	<u>Objective</u>
1. d	1
2. a	1
3. b	1
4. c	1
5. 1,000	2
6. 0.001	2
7. 1	2
8. 60.0	3
9. 30	3
10. $\bar{x}$	4
11. gr. $\frac{1}{18}$	4
12. gr. $\frac{\ddot{}}{11ss}$	4
13. $5\frac{1}{2}$	5
14. $1\frac{11}{21}$	5
15. $34\frac{1}{8}$	5
16. $2\frac{3}{13}$	5
17. 6.1712	5
18. 17.209	5
19. 0.5617	5
20. 35.96	5

Systems of Measurement and Mathematics Review

Pre-requisite Unit

Mini-Quiz

ANSWER SHEET

<u>Answer</u>	<u>Objective</u>
21. 3	6
22. 0.09	6
23. 15,000	6
24. 600	6
25. 10	6

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur Inc.

Gustafson, E., Patterson, R., and Sheridan E., Falconer's The Drug, The Nurse, The Patient, 7th Ed., Philadelphia, 1982, W.B. Saunders Co.

**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 1:** Identify the meaning of common symbols and abbreviations.

**Learner Activity:**

**Article:** Read **Article 1**  
"Common Symbols and Abbreviations"

**Exercise:** Complete **Exercise I**  
"Common Symbols and Abbreviations"

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 1

#### Common Symbols and Abbreviations

<u>Abbreviation/Symbol</u>	<u>Meaning</u>
a.c.	before meals
b.i.d.	twice daily
$\overline{c}$	with
cap.	capsule
c.c.	cubic centimeter
fl., fld.	fluid
Gm. (g)	gram
h.s.	at bedtime
I.U.	international unit
kg.	kilogram
l	liter
mEq.	millequivalent
mcg.	microgram
mg.	milligram
ml.	milliliter
N.B.	note well
p.c.	after meals
p.o.	by mouth

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur Inc..

Health Protection and Drug Laws, Ottawa, 1983, Canadian Government Publishing Centre.

Wood, L., and Rambo, Beverly J., Nursing Skills for Allied Health Services, 2nd Ed., Philadelphia, 1977, W.B. Saunders Co..



## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 1

#### Common Symbols and Abbreviations

<u>Abbreviation/Symbol</u>	<u>Meaning</u>
q.	every
q.d.	every day
q.h.	every hour
q.2h.	every 2 hours
q.3h.	every 3 hours
q.4h.	every 4 hours
q.h.s. or h.s.	every night
q.i.d.	four times a day
q. 2d.	every 2 days
$\overline{s}$	without
ss.	one half
tab.	tablet
t.i.d.	three times a day
u	unit
via	by way of
$\dot{i}$	once
$\ddot{i}$	twice

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur Inc..

Health Protection and Drug Laws, Ottawa, 1983, Canadian Government Publishing Centre.

Wood, L., and Rambo, Beverly J., Nursing Skills for Allied Health Services, 2nd Ed., Philadelphia, 1977, W.B. Saunders Co..

# Administer Oral Medication Using a Controlled Dosage/Unit Dose System

## Article 1

### Exercise 1

#### Common Symbols and Abbreviations

Match the abbreviation/symbol in Column A with the meaning in Column B:

<u>Column A</u>	<u>Column B</u>
1. ____ a.c.	a) twice daily
2. ____ q.2d.	b) by mouth
3. ____ p.c.	c) every two days
4. ____ h.s.	d) after meals
5. ____ q.3h.	e) at bedtime
6. ____ cap.	f) every 3 hours
7. ____ b.i.d.	g) tablet
8. ____ tab.	h) before meals
9. ____ q.i.d.	i) capsule
10. ____ p.o.	j) four times a day
11. ____ u	k) millequivalent
12. ____ mEq.	l) unit

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 1

Exercise 1

ANSWER SHEET

Common Symbols and Abbreviations

Match the abbreviation/symbol in Column A with the meaning in Column B:

<u>Column A</u>	<u>Column B</u>
1. <u>h</u> a.c.	a. twice daily
2. <u>c</u> q.2d.	b. by mouth
3. <u>d</u> p.c.	c. every two days
4. <u>e</u> h.s.	d. after meals
5. <u>f</u> q.3h.	e. at bedtime
6. <u>i</u> cap.	f. every 3 hours
7. <u>a</u> b.i.d.	g. tablet
8. <u>g</u> tab.	h. before meals
9. <u>j</u> q.i.d.	i. capsule
10. <u>b</u> p.o.	j. four times a day
11. <u>l</u> u	k. milliequivalent
12. <u>k</u> mEq.	l. unit

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 2:** Define the following terms:

- |                     |                          |
|---------------------|--------------------------|
| a) absorption       | n) half-life             |
| b) capsule          | o) local effect          |
| c) contraindication | p) metabolism            |
| d) CPS              | q) pill                  |
| e) desired action   | r) side effect           |
| f) dilutant         | s) solubility            |
| g) distribution     | t) systemic action       |
| h) dosage           | u) tablet                |
| i) dose             | v) therapeutic dosage    |
| j) drug interaction | w) timed-release capsule |
| k) enteric-coated   | x) toxic effect          |
| l) excretion        | y) trade name            |
| m) generic name     |                          |

**Learner Activity:**

**Article:** Read **Article 2**  
"Terminology"

**Exercise:** Complete **Exercise 2**  
"Match the Definitions to the Terms"

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

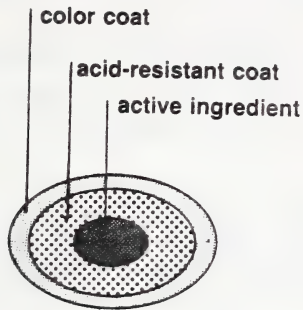
### Article 2 Terminology

<b>Absorption</b>	The passage of substances through the wall of the digestive tract into the blood stream.
<b>Capsule</b>	A gelatinous shell which holds dry powder or liquid medication.
<b>Contraindication</b>	A condition which forbids use of a particular treatment/medication.
<b>CPS</b>	Compendium of Pharmaceuticals and Specialities.
<b>Desired Action</b>	The expected response of a drug.
<b>Diluent</b>	The solution (solvent) used to dissolve a powder.
<b>Distribution</b>	The way in which drugs are transported by the circulating blood into various fluids and tissues.
<b>Dosage</b>	The determination and control of amount and number of doses.
<b>Dose</b>	The amount of medication that is to be given at one time, during specified periods.
<b>Drug Interaction</b>	The action of one drug being altered by the action of another drug.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 2 Terminology

#### **Enteric-Coated**



A coating on tablets used to prevent the release and absorption of the drug until it reaches the intestine. The coat prevents dissolvment of the drug in the acidic stomach.

Enteric-Coated Tablet

Figure 1

Clayton, Bruce D., Squire  
Jessie E., and Stock,  
Yvonne N., Basic Pharmacology  
for Nurses, 8th Ed., St.  
Louis, 1985, C.V. Mosby Co..

#### **Excretion**

The elimination of substances through the G.I. and urinary tracts.

#### **Generic Name**

The chemical name of a drug eg. acetylsalicylic acid.

#### **Half-Life**

The time required for 50% of the drug to be eliminated from the body.

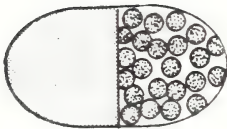
#### **Local Effect**

An effect in which the drug's action is limited to or pertaining to one part.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 2 Terminology

<b>Metabolism</b>	The process by which the body inactivates substances eg. drugs.
<b>Pill</b>	A tiny rounded mass of medication.
<b>Side Effect</b>	The action of a drug other than the desired effect eg. nausea and vomiting. (Adverse Reaction)
<b>Solubility</b>	Ability to dissolve.
<b>Systemic Action</b>	An effect in which the drug is absorbed into the blood and carried to one or more tissues.
<b>Tablet</b>	A dried powdered drug compressed into small discs.
<b>Therapeutic Dosage</b>	The range of doses from smallest to largest which will produce a desired effect.
<b>Timed-Release Capsule</b>	A sustained-release capsule which provides a gradual but continuous release of drug as the granules in the capsule dissolve at different rates.



Timed-Release Capsule

Figure 2

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co..

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 2  
Terminology

**Toxic Effect**

A dose which will result in a poisonous effect.

**Trade Name**

The brand name given by a manufacturer eg. A.S.A.

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co..

Duff, D.L. and Aylward, J.M., A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co..

Perry, Anne G., and Potter Anne G., Fundamentals of Nursing, St. Louis, 1985, C.V. Mosby Co..



## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 2

#### Exercise 2

#### Match the Definitions to the Terms

Match the term in Column A with the definition in Column B:

#### Column A

1. \_\_\_\_ diluent
2. \_\_\_\_ contraindication
3. \_\_\_\_ enteric-coated
4. \_\_\_\_ generic name
5. \_\_\_\_ side effect
6. \_\_\_\_ dosage
7. \_\_\_\_ systemic action
8. \_\_\_\_ trade name
9. \_\_\_\_ timed-release
10. \_\_\_\_ drug interaction

#### Column B

- a) forbids use
- b) chemical name of a drug
- c) brand name of a drug
- d) solution used to dissolve a powder
- e) drug is absorbed into the blood
- f) action of one drug is altered by another
- g) sustained-release
- h) coating that prevents dissolvment of a drug in the stomach
- i) action other than the desired effect
- j) control of number of doses

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 2

### Exercise 2

#### ANSWER SHEET

#### Match the Definitions to the Terms

Match the term in Column A with the definition in Column B:

#### Column A

#### Column B

- |                               |   |
|-------------------------------|---|
| 1. <u>d</u> diluent           | a) forbids use  |
| 2. <u>a</u> contraindication  | b) chemical name of a drug                                    |
| 3. <u>h</u> enteric-coated    | c) brand name of a drug                                       |
| 4. <u>b</u> generic name      | d) solution used to dissolve a powder                         |
| 5. <u>i</u> side effect       | e) drug is absorbed into the blood                            |
| 6. <u>j</u> dosage            | f) action of one drug is altered by another                   |
| 7. <u>e</u> systemic action   | g) sustained-release  |
| 8. <u>c</u> trade name        | h) coating that prevents dissolvment of a drug in the stomach |
| 9. <u>g</u> timed-release     | i) action other than the desired effect                       |
| 10. <u>f</u> drug interaction | j) control of number of doses                                 |

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 3:** Identify the principles of drug action:

- a) drug action
- b) bonding
- c) drug effect (local, systemic)
- d) absorption
- e) distribution
- f) metabolism
- g) excretion
- h) half-life

**Learner Activity:**

**Article:** Read **Article 3**  
"Principles of Drug Action"

**Exercise:** Complete **Exercise 3**  
"Drug Action"

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 3

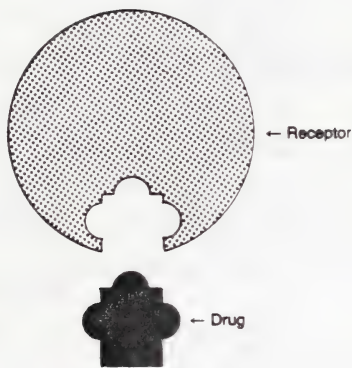
#### Principles of Drug Action

##### a) Drug Action

A drug reaches a site and combines with cellular drug receptors. These receptors are specific sites within the body. They are usually proteins and nucleic acids.

##### b) Bonding

The drug fits into the receptor like a key into a lock. The better the fit, the better the response.



Bonding

Figure 3

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co..

##### c) Drug Effect

The drug effect is the effect of this bonding. This can be a local or systemic effect depending on the number of different cellular drug receptors affected by a given drug. For example Tagamet blocks histamine receptor cells in the stomach. This is a local effect as the drug

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 3

#### Principles of Drug Action

##### c) Drug Effect (Cont'd.)

action is limited to one area only. Benadryl has a **systemic** effect by blocking histamine receptors in widespread areas over the body.

##### d) Absorption

(definition) Absorption is the passage of substances through the wall of the digestive tract into the blood stream.

(rate of absorption) The rate of absorption depends on factors such as the following:

- patient
- drug effect
- dosage form
- route
- interaction with other substances in the G.I. tract
- solubility of the drug

(oral route) 

- The oral route is the enteral route where the drug is administered directly into the gastrointestinal tract.
- Little drug absorption occurs in the mouth because of the small amount of time involved in keeping the solution in contact with the mucosa.
- This route is the oldest, most convenient and economical method of drug administration. It is also the safest as the drug may be retrieved eg. gastric wash. This route is the slowest and most unpredictable method.

(solubility) 

- Drugs must be in solution to cross the membranes of cells. Oral drugs need an adequate amount of fluid. Drugs should be reconstituted with only the diluent recommended by the manufacturer so the solubility is not impaired.
- For example, Metamucil (1 teaspoonful in 240 ml. of water) or Calcium - Sandoz (1 tablet in 230 ml. of water).
- The process of converting the drug into a soluble form is partially controlled by the **dosage form** (eg. suspension, tablets) and **time of administration** in relation to the presence or absence of food in the stomach.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 3

#### Principles of Drug Action

##### d) Absorption (Cont'd.)

(solubility)

- Drugs in solution, eg. syrups, are absorbed more rapidly than tablets that have to disintegrate. The rate at which the drug goes into solution determines how much drug is available for absorption and how quickly it is available. This explains why some drugs such as digoxin produce higher blood levels when administered in solution than as tablets.
- Beside the active drug, drug forms contain ingredients which are used to promote a suitable preparation (ie. increase drug solubility or mask an unpleasant taste).
- There are different rates of dissolvment and absorption of drugs produced by different manufacturers. Different **brands** can cause different therapeutic **responses**.

(drug concentration)

- To decrease the rate of disintegration and dissolvment drugs may have certain formations. When the drug concentration is increased the drug is absorbed more rapidly. This drug concentration is manipulated by the formation of **enteric-coated** drugs and active drugs combined with a **slow release mechanism**.

(enteric-coated)

- Enteric-coated drugs are those that offer resistance to the digestive action of the stomach.
- The enteric coating:
  - 1) Prevents decomposition of the drug
  - 2) Prevents dilution of a drug before it reaches the intestine
  - 3) Prevents nausea and vomiting
  - 4) Provides a delayed reaction
- Crushing the tablet would destroy the coating. The drug would then be released in the stomach and could cause nausea and vomiting.
- Manufacturers and resource books have different abbreviations for enteric-coated drugs (eg. E.C.T, E.C, En-tabs.).

(sustained-release)

- Timed-release drugs are in a soluble wax matrix or covering.
- After the capsule is swallowed the dissolving wax releases the medication. A **limited** amount is



## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 3

#### Principles of Drug Action

##### d) Absorption (Cont'd.)

(sustained-release)

- released at any one time.
- Therefore smaller quantities of the drug are available for absorption over a relatively long period of time, eg. 8-12 hours.
- Individuals differ in the rate of time release so there will be a difference in therapeutic and adverse effects.
- Crushing the capsule would destroy the matrix and the entire dose would be given at once instead of over a period of time.
- Manufacturers and resource books have different names and abbreviations for timed-released capsules (eg. SR, SA, Sust. Rel., S.R., Dura-Tabs, Extentabs, Repetabs.).

(G.I. tract)

The solid drug is disintegrated in and dissolved in the gastrointestinal fluid and transported across the stomach or intestinal lining into the blood.

(stomach)

- The stomach is not an important site of drug absorption. The length of time a substance remains in the stomach is the greatest variable determining the extent of the gastric absorption.
- Levine states only when a drug is taken with enough **water** (200 ml.) on a relatively **empty** stomach is it possible to predict that the drug will reach the small intestine fairly rapidly. For example, if the stomach is filled with food the contents will empty slowly into the duodenum and therefore absorption is slower. A slower gastric emptying rate will decrease drug absorption.

(small intestine)

- The structure of the small intestine allows the area to have the **greatest capacity** for absorption.
- This is due to the:
  - 1) Increased area of absorbing surface (Villi)
  - 2) Increased length of time the substances spend in the intestinal tract. It takes several hours to pass from end to end.
- If the mobility of the small intestine is increased ie. diarrhea, the time spent in maximal absorption is lower.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 3

#### Principles of Drug Action

##### d) Absorption (Cont'd.)

(factors that affect absorption) - Factors that affect absorption of drugs include:

- 1) foods/liquids
- 2) other drugs
- 3) dosage form

foods/liquids

- (1) - Certain foods can cause drugs to bind into complexes that cannot pass through the G.I. lining (eg. milk interferes with the absorption of Tetracycline).
  - Some foods can reduce the amount of medication that can be absorbed (eg. the acid content of juice can break down Penicillin).
  - Other foods can cause severe reactions. For example, bananas, and cheeses could cause a severe hypertensive reaction if the patient ingested them while receiving a Mao inhibitor, Nardil.
  - Medication may have to be taken with meals to reduce the amount of drug-related stomach irritation (eg. Indomethacin).
  - Other drugs, eg. Ampicillin, may have to be administered on an empty stomach where as
  - Prednisone is given after meals to prevent irritation of gastric mucosa.
  - Other medications eg. Metamucil, have to be given with enough water to produce the bulk forming effect.

other drugs

- (2) - Other drugs may interact with the medication. eg. Antacids interfere with the absorption of Tetracycline. (Drug Interactions are covered in Objective 6, Section A.)

dosage form

- (3) - The dosage form can affect absorption. For example:
  - Capsule forms allow absorption to be more rapid as the powder in the capsule offers a larger surface area for absorption.
  - Liquid forms allow the drug to be more easily and completely absorbed resulting in a higher blood level than a tablet.



## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 3

#### Principles of Drug Action

##### d) Absorption (Cont'd.)

- dosage form                    - Enteric-coated tablets and sustained-released capsules may affect the degree of absorption.

##### e) Distribution

- (definition)                    - The distribution is the way in which drugs are **transported** by the circulating blood into various fluids and tissues.
- (blood supply)                    - Organs having the most extensive blood supply (heart, liver, kidneys, brain) receive the drug rapidly.  
- Muscle, skin and fat receive the drug more slowly as they have a less extensive blood supply. However, the drug stays in the tissues longer.
- (selective/general)               - Distribution may be **selective or general**. For example, some drugs cannot pass through certain types of cell membranes (blood brain barrier of CNS), others pass through easily.
- (volume of distribution)               - The total area where a drug is distributed is the **volume of distribution**. This varies from patient to patient. For example, in an edematous patient a given dose will need to be higher as the dose must be distributed to a larger volume. A dehydrated patient therefore with a smaller volume of distribution would need a smaller dose.
- (conclusion)                    - Distribution is important as the amount of a drug that actually gets into the **site** determines the amount of **action**. If very little drug reaches the site, there will be a minimal response.

##### f) Metabolism

- (definition)                    - Metabolism is the process by which the body **inactivates** drugs.
- (hepatic system)                    - The enzyme systems of the **liver** are the primary sites of metabolism.  
- In patients with hepatic disease the metabolism of the drug may be increased, decreased or unchanged. Therefore drug toxicity is a danger.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 3

#### Principles of Drug Action

##### f) Metabolism (Cont'd.)

- (individual variation) - There is **individual variation** in metabolism. The rate of metabolism can be so slow that ordinary doses can produce toxic effects. Or the drug can be metabolized so quickly that the level is therapeutically inadequate.
- (drug effect) - Some drugs can alter the excretion of other drugs, ie. speed up the rate of metabolism, and change the drug effect. (Drug Interactions are covered in Objective 6, Section A).

##### g) Excretion

- (definition) - Excretion is the **elimination** of substances through the G.I. tract to the feces and urinary tract into the urine.
- Renal function must be adequate or the drug will accumulate and produce toxic effects. Drugs are eliminated mainly by the **kidneys**.
- (drug effect) - Some drugs are eliminated almost unchanged by the kidneys.
- Other drugs can block or promote renal excretion. The drug accumulates resulting in an enhanced effect or the drug is too rapidly excreted and the effect is diminished.
- (other routes) - Drugs can also be excreted via perspiration, saliva, breast milk, and exhalation.

##### h) Half-Life

- Elimination of drugs occurs by metabolism and excretion.
- (definition) - Half-life is the measure of time required for elimination. It is the amount of time required for **50%** of the drug to be **eliminated** from the body.
- Most drugs' half-life is known.
- (dosages/ administration time) - **Dosages** and **frequency** of administration can be calculated depending on the half-life.
- For example, digoxin has a long half-life of 36 hours. Therefore one dose is given once daily.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 3

#### Principles of Drug Action

##### h) Half-Life (Cont'd)

- (dosages/  
administration  
time)                      Aspirin has a half-life of 5 hours so doses need to  
be given every 4 to 6 hours.
- (individual  
differences)              - With patients who have impaired hepatic and renal  
function, the half-life might be longer due to the  
inability to metabolize or excrete the drug. For  
example digoxin has a half-life of about 105 hours in  
a patient with complete renal failure.

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co..

Gustafson, E., Patterson, R., and Sheridan E., Falconer's The Drug, The Nurse, The Patient, 7th Ed., Philadelphia, 1982, W.B. Saunders Co..

Nursing 86 Drug Handbook, Pennsylvania, 1986, Springhouse Corporation.

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 3

Exercise 3

Drug Action

Put an "X" in the appropriate box:

	<u>True</u>	<u>False</u>
1. A drug fits into a receptor like a key into a lock.	<input type="checkbox"/>	<input type="checkbox"/>
2. Drug effects are always systemic.	<input type="checkbox"/>	<input type="checkbox"/>
3. Solubility of a drug affects the rate of absorption.	<input type="checkbox"/>	<input type="checkbox"/>
4. Most drugs are absorbed in the stomach.	<input type="checkbox"/>	<input type="checkbox"/>
5. Enteric-coated tablets allow the drug to be absorbed in the stomach.	<input type="checkbox"/>	<input type="checkbox"/>
6. Drugs in solution are absorbed more rapidly than tablets.	<input type="checkbox"/>	<input type="checkbox"/>
7. Sustained-release capsules allow the entire dose to be given at once.	<input type="checkbox"/>	<input type="checkbox"/>
8. Foods can affect absorption of drugs.	<input type="checkbox"/>	<input type="checkbox"/>
9. The heart receives a drug rapidly.	<input type="checkbox"/>	<input type="checkbox"/>
10. The volume of distribution varies from patient to patient.	<input type="checkbox"/>	<input type="checkbox"/>
11. The kidneys metabolize medication.	<input type="checkbox"/>	<input type="checkbox"/>
12. Drugs are excreted mainly by the kidneys.	<input type="checkbox"/>	<input type="checkbox"/>
13. The half-life is the amount of time for 50% of the drug to be absorbed.	<input type="checkbox"/>	<input type="checkbox"/>

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 3

Exercise 3

ANSWER SHEET  
Drug Action

Put an "X" in the appropriate box:

	<u>True</u>	<u>False</u>
1. A Drug fits into a receptor like a key into a lock.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Drug effects are always systemic.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Solubility of a drug affects the rate of absorption.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Most drugs are absorbed in the stomach.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Enteric-coated tablets allow the drug to be absorbed in the stomach.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Drugs in solution are absorbed more rapidly than tablets.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Sustained-release capsules allow the entire dose to be given at once.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Foods can affect absorption of drugs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. The heart receives a drug rapidly.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. The volume of distribution varies from patient to patient.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. The kidneys metabolize medication.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Drugs are excreted mainly by the kidneys.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. The half-life is the amount of time for 50% of the drug to be absorbed.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 4:** Identify the terms used to describe drug action:

- a) desired action
- b) side effect
- c) toxic reaction
- d) idiosyncratic reaction
- e) allergic reaction

**Learner Activity:**

**Article:** Read **Article 4**  
"Terms used to Describe Drug Action"

**Exercise:** Complete **Exercise 4**  
"Terms used to Describe Drug Action"

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 4

#### Terms Used to Describe Drug Action

- a) Desired Action
- The desired action is the **therapeutically** intended response.
- b) Side Effect  
(Adverse effect)
- Any drug effect **other than** what is therapeutically intended is a side effect.
  - Side effects can be expected, unexpected or potentially harmful. For example, a patient may use chlorpheniramine to get relief from hay fever but may have to cope with the side effect of drowsiness.
  - The dose may then be adjusted up or down to balance the therapeutic and side effect. If the side effect is hazardous the drug would be discontinued.
  - Some side effects subside with continued use eg. the drowsiness associated with Aldomet.
  - Many side effects are **dose-related** and lessen or disappear if the dosage is reduced.
- c) Toxic Reaction
- Excessive accumulation of a drug may result in drug toxicity.
  - Drug toxicities usually occur when drug blood levels rise due to impaired metabolism or excretion. For example, Digoxin toxicity can occur following impaired renal function because Digoxin is eliminated almost exclusively by the kidneys.
  - Toxic blood levels can also occur from excessive dosage.
  - Most drug toxicity is **predictable** and **dose related**.
  - Most drug toxicity is readily reversible with dosage adjustment.
- d) Idiosyncratic Reaction
- Idiosyncratic reactions are highly unpredictable, individual and **unusual** reactions when a drug is first administered.
  - The patient over-responds to the action of a drug.
  - This can be due to a patient's inability to metabolize a drug due to a genetic deficiency.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 4

#### Terms Used to Describe Drug Action

- e) Allergic Reaction  
(hypersensitivity drug allergy)
- (urticaria)
- (anaphylactic reaction)
- (cross sensitivity)
- Allergic reactions occur in 6-10% of patients.
  - They occur in patients, who have been previously exposed to a drug and have developed antibodies from their immune system to it. Upon exposure the antibodies cause a reaction most commonly seen as raised irregular shaped patches on the skin with severe itching - **urticaria** or hives.
  - An anaphylactic reaction is a severe life threatening reaction that causes respiratory distress.
  - It is an **EMERGENCY**, eg. Penicillin anaphylaxis.
  - If the patient has a mild reaction (urticaria) it should be taken as a warning not to take the medication again. The patient is more likely to have an anaphylactic reaction at the next exposure to the drug.
  - Cross sensitivity may exist between different drugs and foods. For example patients allergic to Penicillin may also be allergic to Ampicillin.

Asperheim, Mary K., and Eisenhauer, Laurel A., The Pharmacologic Basis of Patient Care, 4th Ed., Philadelphia, 1981, W.B. Saunders Co..

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co..

Nursing 86 Drug Handbook, Pennsylvania 1986, Springhouse Corporation.



Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 4

Exercise 4

Terms Used to Describe Drug Action

Select the Correct Word:

1. \_\_\_\_\_ reactions are highly unpredictable,  
(anaphylactic, idiosyncratic)  
individual and unusual reactions.
2. \_\_\_\_\_ is an example of an allergic reaction called  
(urticaria, hematuria)  
hives.
3. An anaphylactic reaction can cause \_\_\_\_\_  
(respiratory, cardiovascular)  
distress.
4. Many side effects are related to drug \_\_\_\_\_.  
(action, dosage)
5. A \_\_\_\_\_ effect is the therapeutically intended response.  
(side, desired)
6. Side effects can be \_\_\_\_\_ harmful.  
(potentially, constantly)
7. Excessive accumulation of a drug may result in \_\_\_\_\_  
(cross sensitivity  
drug toxicity).

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 4

Exercise 4

ANSWER SHEET

Terms Used to Describe Drug Action

Select the Correct Word:

1. Idiosyncratic reactions are highly unpredictable,  
(anaphylactic, idiosyncratic)  
individual and unusual reactions.
2. Urticaria is an example of an allergic reaction called  
(urticaria, hematuria)  
hives.
3. An anaphylactic reaction can cause respiratory  
(respiratory, cardiovascular)  
distress.
4. Many side effects are related to drug dosage.  
(action, dosage)
5. A desired effect is the therapeutically intended response.  
(side, desired)
6. Side effects can be potentially harmful.  
(potentially, constantly)
7. Excessive accumulation of a drug may result in drug toxicity  
(cross sensitivity  
drug toxicity).

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 5:** Identify factors which influence **Drug Action:**

- a) dosage
- b) route
- c) time of administration
- d) cumulative action
- e) tolerance
- f) drug dependence
- g) body weight
- h) sex
- i) metabolic rate
- j) age
- k) psychological aspects
- l) illness

**Learner Activity:**

**Article:** Read **Article 5**  
"Factors Which Influence Drug Action"

**Table:** Read **Table I**  
"Drugs and the Elderly"

**Exercise:** Complete **Exercise 5**  
"Factors Influencing Drug Action"

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 5

#### Factors Which Influence Drug Action

##### a) Dosage

- Drug action is influenced by the dosage of a drug given at any one time, its frequency, and duration of prescription.
- Toxic dose is the amount of a drug that causes untoward reactions in the average individual.
- Oral solutions of the same drug are more easily and completely absorbed. Therefore they produce higher blood levels than a tablet.
- If a potentially toxic drug is given the increased amount absorbed could cause toxicity ie. digoxin elixir.

*"Sometimes a change in dosage form requires a change in dose."*

##### b) Route

Routes of medications are not interchangeable. For example, Dilantin is readily absorbed orally but is slowly and erratically absorbed by injection. An incorrect route could result in an ineffective to dangerous response.

##### c) Time of Administration

The time at which a drug is administered sometimes influences drug action. Absorption is more rapid if the stomach is free from food. A dose of a drug which is adequate before a meal may be ineffective if given after a meal. Larger amounts of irritating drugs can be tolerated if food is present in the stomach.

##### d) Cummulative Action

A drug may accumulate in the body if the next doses are administered before previously administered doses have been metabolized or excreted. The drug concentration will rise and toxic symptoms may appear.

##### e) Tolerance

When a drug is taken repeatedly over a long period tolerance to its action may develop. The dose may have to be increased to obtain the desired therapeutic effect. Tolerance may be due to psychological dependence or the body may metabolize a particular drug more rapidly than before causing the effects of the drug to wear off more rapidly.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 5

#### Factors Which Influence Drug Action

##### **e) Tolerance (cont'd)**

Cross tolerance among drugs belonging to the same group can occur eg. an individual tolerant to alcohol may have the same degree of tolerance to barbiturates.

##### **f) Drug Dependence (addiction)**

This is the inability of a person to control the ingestion of drugs. The dependence may be physical where the person develops withdrawal symptoms if the drug is withdrawn for a certain time period. Psychological dependence can occur where the patient is attached to the drug. Drug dependence is most commonly seen with the controlled drugs, eg. barbiturates.

##### **g) Body Weight**

- The ratio between body weight and the amount of drug given determines the concentration that can be attained in the body.
- Overweight patients will require an increase in dosage to attain the same therapeutic response. Underweight patients will require lower doses for the same therapeutic response.

##### **h) Sex**

Women are more susceptible to the action of certain medication. This increase in responsiveness may be sufficient to demand a reduction in dosage.

##### **i) Metabolic Rate**

Patients with a higher metabolic rate metabolize drugs more rapidly thus needing either larger doses or more frequent administration. The converse is true for lower metabolic rates.

##### **j) Age**

- The elderly require a greater number of drugs than the young because they have a greater variety of diseases requiring one or more medications.
- For example, a patient with congestive heart failure may take Digoxin to improve cardiac contractibility, a diuretic (Lasix) to help eliminate excess fluid and Potassium Chloride to replace potassium lost due to the diuretic's action.



## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 5

#### Factors Which Influence Drug Action

##### j) Age (cont'd)

###### - In General:

1. *Drugs tend to be absorbed, distributed, metabolized and excreted more slowly and less efficiently with advancing age. Therefore drug dosages are smaller and sometimes given at longer intervals.*
2. *Drug interactions, imbalances, incompatibilities and toxic accumulations are more common in the elderly.*  
*\*See Table I "Drugs and the Elderly"*

##### k) Psychological Aspects

- Attitudes and expectations play a role in a patient's response to therapy and his/her willingness to take medication. Patients with "silent" illnesses, such as hypertension, tend to be much less compliant with treatment.
- A placebo effect may occur if a patient is given a drug dosage form (tablet/capsule) which has no active drug. When taken the patient may experience a therapeutic response. This is beneficial for patients who are having anxiety as the patient tends to take fewer potentially habit forming drugs.

##### 1) Illness

Illness may alter the rate of absorption, distribution, metabolism and excretion. For example vomiting patients may not be able to keep a medication in the stomach long enough for absorption. Patients with kidney disorders may have problems excreting drugs and thus need a reduced dosage.

Asperheim, Mary K., and Eisenhauer, Laurel A., The Pharmacologic Basis of Patient Care, 4th Ed., Philadelphia, 1981, W.B. Saunders Co..

Drugs, Pennsylvania, 1983, Springhouse Corporation.

Gustafson, E., Patterson, R., and Sheridan E., Falconer's The Drug, The Nurse, The Patient, 7th Ed., Philadelphia, 1982, W.B. Saunders Co..

Nursing 86 Drug Handbook, Pennsylvania 1986, Springhouse Corporation.

# Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Table I

## Drugs and the Elderly

ABSORPTION	DISTRIBUTION	METABOLISM	EXCRETION	CHRONIC DISEASE
<ol style="list-style-type: none"> <li>1. <u>decrease</u> in gastric acid secretion.</li> <li>2. <u>decrease</u> in gastro-intestinal mobility. This leads to slow emptying of stomach contents and movement of intestinal contents.</li> <li>3. drugs are absorbed at a <u>lower</u> rate and less consistently.</li> <li>4. It is difficult to determine the amount of drug actually absorbed into the blood.</li> </ol>	<ol style="list-style-type: none"> <li>1. <u>decrease</u> in blood supply to cells. This leads to an altered distribution of drugs.</li> <li>2. <u>Increase</u> in body fat. Fat, (Lipid) soluble drugs will stay in the body fat. Therefore there will be an increase in the duration of these drugs' action, eg. barbiturates - Seconal, can cause residual drowsiness.</li> <li>3. <u>decrease</u> in lean body mass. Water soluble drugs are distributed to aqueous parts and lean tissue. Since there is less lean tissue more of the drug stays in the blood stream, eg. Gentamicin.</li> </ol>	<ol style="list-style-type: none"> <li>1. <u>decrease</u> in the number of liver enzymes.</li> <li>2. <u>decrease</u> in blood flow to the liver due to a decrease in cardiac output.</li> <li>3. this leads to a <u>slow</u> or delayed metabolism which results in higher drug blood levels.</li> <li>4. this higher drug blood level causes an increase in drug effects.</li> <li>5. these longer-lasting drug effects are due to prolonged blood concentration.</li> <li>6. therefore there is a greater incidence of drug toxicity eg. Secobarbital.</li> </ol>	<ol style="list-style-type: none"> <li>1. many medications are excreted primarily through the kidneys.</li> <li>2. the ability to eliminate is <u>reduced 50% or more.</u></li> <li>3. decrease in renal blood flow.</li> <li>4. <u>loss</u> of functioning nephrons.</li> <li>5. the kidneys' ability to excrete the drug is decreased.</li> <li>6. this leads to higher blood levels eg. Digoxin Toxicity.</li> </ol>	<ol style="list-style-type: none"> <li>1. many patients may have diseased kidneys or liver.  the rate of metabolism or excretion is reduced leading to a prolonged drug effect.</li> </ol>

Drugs, Pennsylvania, 1983, Springhouse Corporation

Gustafson, E., Patterson, R., and Sheridan E., Falconer's The Drug, The Nurse, The Patient, 7th Ed., Philadelphia, 1982, W.B. Saunders Co.

Nursing 86 Drug Handbook, Pennsylvania 1986, Springhouse Corporation.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 5

### Exercise 5

#### Factors Influencing Drug Action

Put an "X" in the appropriate box:

	<u>True</u>	<u>False</u>
1. A change in dosage form may require a change in dose.	<input type="checkbox"/>	<input type="checkbox"/>
2. Routes of medication are changeable.	<input type="checkbox"/>	<input type="checkbox"/>
3. Any drug can be administered at any time.	<input type="checkbox"/>	<input type="checkbox"/>
4. Cumulative action may cause toxic symptoms to appear.	<input type="checkbox"/>	<input type="checkbox"/>
5. Tolerance means that a patient is dependent or addicted to a drug.	<input type="checkbox"/>	<input type="checkbox"/>
6. There are standard doses given to patients <u>regardless</u> of body weight.	<input type="checkbox"/>	<input type="checkbox"/>
7. Metabolic rate can effect drug action.	<input type="checkbox"/>	<input type="checkbox"/>
8. Elderly patients need smaller doses given usually at longer intervals.	<input type="checkbox"/>	<input type="checkbox"/>
9. Drug interactions are less common in the elderly as in a young adult.	<input type="checkbox"/>	<input type="checkbox"/>
10. Absorption, distribution, metabolism and excretion of medication are decreased in the elderly.	<input type="checkbox"/>	<input type="checkbox"/>
11. Chronic disease <u>will not</u> effect the rate of excretion or metabolism in the elderly.	<input type="checkbox"/>	<input type="checkbox"/>



Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 5

Exercise 5

ANSWER SHEET

Factors Influencing Drug Action

Put an "X" in the appropriate box:

	<u>True</u>	<u>False</u>
1. A change in dosage form may require a change in dose.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Routes of medication are changeable.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Any drug can be administered at any time.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Cumulative action may cause toxic symptoms to appear.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Tolerance means that a patient is dependent or addicted to a drug.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. There are standard doses given to patients <u>regardless</u> of body weight.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Metabolic rate can effect drug action.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Elderly patients need smaller doses given usually at longer intervals.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Drug interactions are less common in the elderly as in a young adult.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Absorption, distribution, metabolism and excretion of medication are decreased in the elderly.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Chronic disease <u>will not</u> effect the rate of excretion or metabolism in the elderly.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 5

Exercise 5

Factors Influencing Drug Action

Put an "X" in the appropriate box:

	<u>True</u>	<u>False</u>
12. A placebo contains an active drug.	<input type="checkbox"/>	<input type="checkbox"/>
13. Attitudes <u>do not</u> effect a patient's response to drug therapy.	<input type="checkbox"/>	<input type="checkbox"/>
14. There is an increase in body fat in the aged patient.	<input type="checkbox"/>	<input type="checkbox"/>
15. Illness may alter the rate of absorption, distribution, metabolism and excretion of drugs.	<input type="checkbox"/>	<input type="checkbox"/>

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 5

Exercise 5

ANSWER SHEET

Factors Influencing Drug Action

Put an "X" in the appropriate box:

	<u>True</u>	<u>False</u>
12. A placebo contains an active drug.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Attitudes <u>do not</u> effect a patient's response to drug therapy.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14. There is an increase in body fat in the aged patient.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15. Illness may alter the rate of absorption, distribution, metabolism and excretion of drugs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 6:** Identify the types of drug interactions:

- a) additive effect
- b) antagonistic effect
- c) displacement
- d) interference
- e) synergistic effect

**Learner Activity:**

Article: Read **Article 6**  
"Facts on Drug Interactions"

Table: Read **Table II**  
"Drug Interactions"

Exercise: Complete **Exercise 6**  
"Drug Interactions"

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 6

#### Facts on Drug Interactions

Facts on Drug Interactions include the following:

1. A drug interaction is the action of one drug being altered by the action of another drug.
2. Usually the effect of one drug is increased or decreased.
3. Drug interactions must be dealt with on an individual basis.
4. Drug interactions can be beneficial or dangerous. Toxicity may occur.
5. Combination drug therapy is based upon drug interaction.
6. Most interactions can be avoided or minimized by either:
  - i) *changing the dose of one or more medications*
  - or*
  - ii) *changing the time at which medications are taken*

Silverman, Harold and Simon, Gilbert, The Pill Book, 3rd Ed., New York, 1986, Bantam Books.

Nursing 86 Drug Handbook, Pennsylvania, 1986, Springhouse Corporation.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Table II

### Drug Interactions

ADDITIVE EFFECT	ANTAGONISTIC EFFECT	DISPLACEMENT	INTERFERENCE	SYNERGISTIC EFFECT
<ul style="list-style-type: none"> <li>- Two drugs with similar actions are taken for a doubled effect.</li> <li>- They act on the same receptor.</li> <li>- Mathematically expressed as <math>1+1 = 2</math>, the response is equal to the sum of the individual drug responses.</li> </ul> <p><b>Example</b></p> <p>Darvon + Aspirin = added analgesic effect</p>	<ul style="list-style-type: none"> <li>- One drug <u>interferes</u> with the action of another.</li> <li>- Can be beneficial/not beneficial.</li> </ul> <p><b>Example</b> - Not Beneficial</p> <p>1) one drug can interfere with the absorption of another drug.</p> <p style="padding-left: 40px;">Tetracycline + Antacid = decreased absorption of Tetracycline</p> <p><b>Example</b> - Beneficial</p> <p>1) one drug interferes with the action of another to prevent certain side effects</p> <p style="padding-left: 40px;">Hydrochloric + Aldactone Hydrochloric - depletes potassium Aldactone - spares potassium excretion</p>	<ul style="list-style-type: none"> <li>- The second drug <u>displaces</u> the first drug. This results in the increase in activity of the first drug.</li> </ul> <p><b>Example</b></p> <p style="padding-left: 40px;">Warfarin + Aspirin = increased anticoagulant effect</p>	<ul style="list-style-type: none"> <li>- One drug <u>inhibits</u> the metabolism or excretion of a second drug. This inhibition causes increased activity of the second drug.</li> </ul> <p><b>Example</b></p> <p style="padding-left: 40px;">Proban + Penicillin = prolonged blood level of Penicillin</p> <p style="padding-left: 40px;">- proban blocks renal excretion of penicillin</p>	<ul style="list-style-type: none"> <li>- The effect of the interaction is <u>greater</u> than the effect if both drugs were taken separately.</li> <li>- Mathematically expressed as <math>1+1 = 3</math>, as the response is greater than the sum of the individual drug responses.</li> </ul> <p><b>Example</b></p> <p style="padding-left: 40px;">Inderal (antitanginal) + Hydrochloric (Diuretic) = much greater antihypertensive effect.</p>

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co..

Gustafson, E., Patterson, R., and Sheridan E., Falconer's The Drug, The Nurse, The Patient, 7th Ed., Philadelphia, 1982, W.B. Saunders Co..

Malsaed, Roger T., Pharmacology: Drug Therapy and Nursing Considerations, 2nd Ed., Philadelphia, 1985, J.B. Lippincott Co..

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 6

Exercise 6

Drug Interactions

Fill in the blanks:

1. A \_\_\_\_\_ is the action of one drug being altered by the action of another drug.
2. Drug interactions may be \_\_\_\_\_ or dangerous.
3. \_\_\_\_\_ drug therapy is based upon drug interaction.
4. Interactions can be minimized by changing the \_\_\_\_\_ or changing the \_\_\_\_\_ of medications.
5. The types of drug interactions include:
  1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
  4. \_\_\_\_\_
  5. \_\_\_\_\_

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 6

Exercise 6

ANSWER SHEET  
Drug Interactions

Fill in the blanks:

1. A drug interaction is the action of one drug being altered by the action of another drug.
2. Drug interactions may be beneficial or dangerous.
3. Combination drug therapy is based upon drug interaction.
4. Interactions can be minimized by changing the dose or changing the time of medications.
5. The types of drug interactions include:
  1. Additive Effect
  2. Antagonistic Effect
  3. Displacement
  4. Interference
  5. Synergistic Effect

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 7:** Identify the legalities of medication administration:

- a) legislation controlling drugs in Canada
- b) role of the RNA

**Learner Activity:**

**Article:** Read **Article 7**  
"Legalities of Medication Administration"

**Exercise:** Complete **Exercise 7**  
"Legalities of Medication Administration"

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 7

#### Legalities of Medication Administration

##### a) LEGISLATION

The Food and Drugs Act and the Narcotic Control Act contain the laws about drug administration, sale and manufacture for the whole of Canada.

The Food and Drugs Act protects the public by prohibiting false advertising or labelling, unsanitary preparation, or use of substandard material. The Act lists drugs which may not be used in Canada at all.

Many hospital drugs are restricted or controlled under the Food & Drug Act, eg. amphetamines/barbiturates. These drugs have been shown to be dangerous with indiscriminate use. These drugs include the following:

##### Controlled Drugs/Schedule "G" Drugs:

1. Amobarbsecobarb (Tuinal)
2. Butabarb (Buitsol)
3. Carbritar
4. Mandrax
5. Methylphenidate (Litalin)
6. Phenobarb
7. Secobarb (Seconal)
8. Talwin

Possession of a controlled drug is an offence only if it has been obtained for purposes of trafficking.

These drugs are controlled in terms of who has access to them.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 7

#### Legalities of Medication Administration

##### b) ROLE OF THE RNA

The RNA has to be aware of his/her hospital policies. Even within one hospital, different units may have varied or modified policies.

He/She has to know which medications may be given by a RNA. There may be certain restrictions placed on a medication eg. first dose of an antibiotic may have to be given by a RN.

As an employee hospital policies have to be followed for legal protection. Though the principles of safe drug administration are basically the same in most institutions, policies regarding administration vary.

Regulations protect the patient from the risk of traumatizing events. Hospital policies, if disregarded could result in legal action against any member of the health team. Safety regulations are effected only when understood and readily interpreted by staff as necessary for patient protection.

Good, Shirley R., and Kerr, Janet C., Contemporary Issues in Canadian Law for Nurses, Toronto, 1973, Holt, Rinchart and Winston of Canada Limited.

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 7

Exercise 7

Legalities of Medication Administration

Put an "X" in the appropriate box:

	<u>TRUE</u>	<u>FALSE</u>
1. An RNA can administer <u>any</u> medication.	<input type="checkbox"/>	<input type="checkbox"/>
2. Talwin is a Controlled Drug.	<input type="checkbox"/>	<input type="checkbox"/>
3. Narcotics are Schedule "G" Drugs.	<input type="checkbox"/>	<input type="checkbox"/>
4. The Food and Drugs Act contain the laws about drug administration.	<input type="checkbox"/>	<input type="checkbox"/>
5. Anyone can obtain a Controlled Drug.	<input type="checkbox"/>	<input type="checkbox"/>
6. Controlled Drugs are controlled in terms of who has access to them.	<input type="checkbox"/>	<input type="checkbox"/>
7. A RNA should follow hospital policy for legal protection.	<input type="checkbox"/>	<input type="checkbox"/>

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 7

Exercise 7

ANSWER SHEET

Legalities of Medication Administration

Put an "X" in the appropriate box:

	<u>TRUE</u>	<u>FALSE</u>
1. An RNA can administer <u>any</u> medication.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Talwin is a Controlled Drug.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Narcotics are Schedule "G" Drugs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. The Food and Drugs Act contain the laws about drug administration.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Anyone can obtain a Controlled Drug.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Controlled Drugs are controlled in terms of who has access to them.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. A RNA should follow hospital policy for legal protection.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 8:** Identify the action or effects of each of the following drug classifications:

- a) antimicrobial and antiparasitic agents
- b) cardiovascular system drugs
- c) central nervous system drugs
- d) respiratory tract drugs
- e) gastrointestinal tract drugs
- f) hormonal agents
- g) agents for fluid and electrolyte balance
- h) antineoplastic agents
- i) nutritional agents
- j) miscellaneous drug categories

**Learner Activity:**

**Article:** Read Article 8  
"Drug Classifications"

**Exercise:** Complete Exercise 8  
"Drug Classifications"

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 8

#### Drug Classifications

The dictionary defines the word classification in the following way:

Systematic arrangement in groups or categories according to established criteria.

Drug classification then is a systematic way of organizing drugs into groups of drugs that serve a similar purpose.

For example, we are all familiar with a library and the various sections of books, fiction, history, biography and reference. The books in any one section have one common factor, i.e., all fiction or all biography. In all other respects, the books in the section on fiction may be quite different; different authors, sizes, stories, etc..

Similarly, drug classifications sort drugs into **groups** but the drugs in the whole group can be quite different from one another. The following drug classifications follow the classifications listed in the contents section of your Nursing 86 Drug Handbook:

#### a) Antimicrobial and Antiparasitic Agents:

- |               |   |
|---------------|---|
| Antimicrobial | - an agent that eliminates pathogenic organisms, eg. antibiotic, antibacterial, anti-infective. |
| Antiparasitic | - an agent that is toxic to parasites, eg. scabies.   |

#### b) Cardiovascular System Drugs:

- |                   |   |
|-------------------|---|
| Cardiac glycoside | - an agent which increases the force of heart contraction and slows the heart rate. |
| Antihypertensive  | - an agent that decreases blood pressure.   |
| Vasodilator       | - an agent that dilates blood vessels.  |

#### c) Central Nervous System Drugs:

- |                   |   |
|-------------------|---|
| Analgesic         | - an agent that relieves pain.          |
| Antipyretic       | - an agent that reduces fever.          |
| Anti-inflammatory | - an agent that decreases inflammation. |



## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 8

#### Drug Classifications

##### c) Central Nervous System Drugs (cont'd)

- |                   |   |
|-------------------|---|
| Sedative-Hypnotic | - an agent that can either (1) produce a calming effect and (2) induce sleep or (3) maintain sleep depending on the dosage. |
| Anticonvulsant    | - an agent that helps prevent or control different types of seizures.   |
| Antidepressant    | - an agent that alleviates depression.  |

##### d) Respiratory Tract Drugs:

- |               |   |
|---------------|---|
| Antihistamine | - an agent given to neutralize histamine produced in the body.        |
| Antitussive   | - an agent that relieves or prevents a cough.                         |
| Expectorant   | - an agent that increases mucus secretion from the respiratory tract. |

##### e) Gastrointestinal Tract Drugs:

- |                         |  |
|-------------------------|--|
| Antacid                 | - an agent that reduces acidity in the G.I. tract.                             |
| Laxative<br>(cathartic) | - an agent that relieves constipation.   |
| Antiemetic              | - an agent that controls nausea and vomiting.                                  |
| Anticholinergic         | - an agent that can decrease G.I. motility and inhibit gastric acid secretion. |

##### f) Hormonal Agents:

- |                    |   |
|--------------------|---|
| Corticosteroid     | - a hormone that produces an anti-inflammatory effect.                      |
| Oral contraceptive | - a hormone that prevents contraception by inhibiting ovulation.            |
| Antidiabetic       | - an agent that lowers blood glucose.                                       |
| Thyroid Hormone    | - a hormone that regulates growth and maturation. (general body metabolism) |



## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 8

#### Drug Classifications

g) Agents for Fluid and Electrolyte Balance:

Diuretic - an agent that increases urination.

h) Antineoplastic Agents:

- an agent that is selectively toxic to cancer cells.

i) Nutritional Agents:

Vitamin - an agent that promotes protein, fat, and carbohydrate metabolism.

Mineral

- an element that is needed for the production and stabilization of proteins.

j) Miscellaneous Drug Categories:

Antiparkinson

- a medication used to relieve the symptoms of parkinson's disease.

Bergensen, Betty S., and Goth, Andres, Pharmacology in Nursing, 13th Ed., St. Louis, 1976, C.V. Mosby Co..

Rosdahl, Caroline, Textbook of Basic Nursing, 3rd Ed., Philadelphia, 1981, J.B. Lippincott Co..

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 8

### Exercise 8

#### Drug Classifications

Match the drug classification in Column A with the definition in Column B:

#### Column A

1. \_\_\_\_ analgesic
2. \_\_\_\_ antihypertensive
3. \_\_\_\_ antipyretic
4. \_\_\_\_ antimicrobial
5. \_\_\_\_ sedative
6. \_\_\_\_ antitussive
7. \_\_\_\_ antiemetic
8. \_\_\_\_ antidiabetic
9. \_\_\_\_ diuretic
10. \_\_\_\_ thyroid hormone

#### Column B

- a) antibiotic
- b) reduces fever
- c) produces sleep
- d) relieves pain
- e) decreases BP
- f) controls nausea
- g) increases urination
- h) relieves coughing
- i) lowers blood glucose
- j) regulates growth

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 8

Exercise 8

ANSWER SHEET  
Drug Classifications

Match the drug classification in Column A with the definition in Column B:

<u>Column A</u>	<u>Column B</u>
1. <u>  d  </u> analgesic	a) antibiotic
2. <u>  e  </u> antihypertensive	b) reduces fever
3. <u>  b  </u> antipyretic	c) produces sleep
4. <u>  a  </u> antimicrobial	d) relieves pain
5. <u>  c  </u> sedative	e) decreases BP
6. <u>  h  </u> antitussive	f) controls nausea
7. <u>  f  </u> antiemetic	g) increases urination
8. <u>  i  </u> antidiabetic	h) relieves coughing
9. <u>  g  </u> diuretic	i) lowers blood glucose
10. <u>  j  </u> thyroid hormone	j) regulates growth

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 9:** Demonstrate the ability to research medications:

- a) instructions on how to use the CPS
- b) instructions on how to use the Nursing Drug Handbook

**Learner Activity:**

**Article:** Read **Article 9**  
"Instructions on Using the CPS and Drug Handbook"

**Exercise:** Complete **Exercise 9**  
"Research Medications"  
- Use your text Nursing 86 Drug Handbook or the CPS.  
(Remember the manufacturer's pharmacological insert and the pharmacist are also important resources)

- i) research if the medications listed are trade or generic names
- ii) research each medication's:
  - therapeutic dosage
  - desired action
  - side effects
  - contraindications
  - drug interactions

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 9

#### Instructions on Using the CPS and Drug Handbook

#### a) Instructions on How to Use the CPS, Compendium of Pharmaceuticals and Specialities:

##### 1) Pages:

*White* - contain the alphabetical listing of drugs  
see Example 1

##### **SURFAK® Hoechst**

###### **Docusate Calcium**

###### **Stool Softener**

**Description:** Docusate calcium is an anionic surfactant with emulsifying and wetting properties.

When administered orally, it lowers surface tension in the gastrointestinal tract, permitting water and fats to penetrate and soften fecal matter.

**Indications:** The treatment of functional constipation caused by hard dry stools. Drug requires 1 or 2 days to exert full effect and when used alone is of little value in atonic constipation.

**Contraindications:** Do not use when abdominal pain, nausea or vomiting is present.

**Precautions:** Do not administer concomitantly with mineral oil; increased absorption of the oil may result.

**Adverse Effects:** No serious adverse effects have been reported but excessive doses may cause anorexia, diarrhea and vomiting. Mild, transitory cramping pains may rarely occur.

**Dosage:** Usual adult dose is 240 mg daily. Children and adults with minimum needs 50-150 mg daily.

**Supplied:** Each soft, red, gelatin capsule contains 240 mg of docusate calcium, Sodium-free, Tartrazine-free. Boxes of 30 and 300.

Each soft, orange, gelatin capsule contains 50 mg of docusate calcium, Sodium-free, Tartrazine-free. Bottles of 100.

- the drug Surfak is listed as a brand name.
- under the brand name is the generic name, **docusate calcium**.
- the classification is written in the top right corner, eg. stool softener.
- information about the drug is given which can include:

- a) description
- b) indications
- c) pharmacology
- d) contraindications
- e) precautions
- f) adverse effects
- g) dosage
- h) supplied
- i) overdose symptoms and treatment

##### White Pages

###### Example 1

- Blue*
- contain the alcohol and sodium (Na) content of certain medications.
  - For example, Benylin Cough Syrup has 63% alcohol and Dulcolax tablets are sodium free.

Compendium of Pharmaceuticals and Specialities, 20th Ed., Ottawa, 1986, Canadian Pharmaceutical Association.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 9

#### Instructions on Using the CPS and Drug Handbook

#### a) Instructions on How to Use the CPS, Compendium of Pharmaceuticals and Specialities:

##### i) Pages:

*Pink*

##### **Constipation Therapy**

**see also Cathartics; Enemas; Laxatives**

Agarol	P.D.
Doxidan	Hoechst
Dulcodos	Boehringer
	Ingelheim
Dulcolax	Boehringer
	Ingelheim
Fibyrax	Roussel
Fleet Enema	Frosst
Glysenid	Anca Pharma
Infibran	Nordic
Lansoyl	Jouveinal
Metamucil	Searle
Microlax	Pharmacia
Mitrolan	Robins
Modane	Adria
Prodiem	Rorer
Prodiem Plain	Rorer
Regulex	Ayerst
Regulex-D	Ayerst
Roydan	Roy
Surfak	Hoechst

- contain the prescriber's guide and therapeutic index used by the doctor for drug selection.

##### Pink Pages

##### Example 2

Compendium of Pharmaceuticals and Specialities, 20th Ed., Ottawa, 1986, Canadian Pharmaceutical Association.

*Pink*

- contain a visual alphabetical Identification of drug dosage form. (size, color).



##### Picture

##### Example 3

Compendium of Pharmaceuticals and Specialities, 20th Ed., Ottawa, 1986, Canadian Pharmaceutical Association.



## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 9

#### Instructions on Using the CPS and Drug Handbook

#### a) Instructions on How to Use the CPS, Compendium of Pharmaceuticals and Specialities:

##### i) Pages:

- Yellow* - contain a key to abbreviated names of manufactures as used in the CPS. For example, *Surfak*, *Hoechst* instead of *Surfak*, *Hoechst Can. Inc.* (see Example 1, White Pages).
- Green* - contain a list of brand and generic names. For example, *Surfak*, **docusate calcium**. *Surfak* is the brand name, **docusate calcium** is the generic name.
- Grey* - contain a key to CPS abbreviations, equivalents and conversions, eg. E.C.T. = enteric-coated tablets.  
- contain a list of Drug Schedules eg. Schedule G/Controlled Drugs.

##### ii) Summary:

- find the medication under the correct alphabetical listing eg. "S" for *Surfak*. Research the medication.
- the green pages allow you to check quickly the medication you have. For example, the doctor's order is for ascorbic acid. On looking in the green pages you see ascorbic acid is Vitamin C.

Compendium of Pharamaceuticals and Specialities, 20th Ed., Ottawa, 1986, Canadian Pharmaceutical Association.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 9

#### Instructions on Using the CPS and Drug Handbook

#### **b) Instructions on How to Use the Nursing Drug Handbook:**

*"Please use your handbook to follow the example"*

##### **i) Pages:**

*Purple* - contain an index of medications in the handbook. For example *Entrophen* is on page 857 of the index.

*White* - contain the alphabetical list of generic names of drugs described in each chapter.

- the contents of each chapter is in the CONTENTS beginning of the handbook. For example, Chapter 23 contains nonnarcotic analgesics and antipyretics.
- on finding Entrophen in the index you are directed to turn to page 197 of the white pages. Entrophen is listed in Chapter 23 under non-narcotic analgesics and antipyretics.
- the generic name is followed by an alphabetic list of brand names. Notice *Aspirin* is the generic name and *Entrophen* is a brand name.
- information is also included on timed-release or controlled-substances.
- information about the medication is given which can include:
  - a) mechanism of action How the drug produces its therapeutic effect.
  - b) indications and dosage eg. *"Adults receiving Entrophen for arthritis are recommended 2.6 - 5.2 g. p.o. daily in divided doses."*
  - c) adverse reactions Each drug's commonly observed side effects and selected rare ones are listed. The most common and life threatening ones are *italicized* for easy reference. Adverse reactions are grouped to body system, eg. *"Blood: prolonged bleeding time"* is a side effect of Entrophen.
  - d) interactions Clinically significant reactions with other drugs are given along with specific instructions for dealing with dangerous drug interactions. For example, *"Oral anticoagulants: increase risk of bleeding. Avoid using (Entrophen) with an anti-anticoagulant if possible."* On researching the possible effects of two drugs given simultaneously refer to the interaction section of **EACH DRUG**.



## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 9

#### Instructions on Using the CPS and Drug Handbook

##### **b) Instructions on How to Use the Nursing Drug Handbook:**

*"Please use your handbook to follow the example"*

###### **i) Pages**

*White*

- e) nursing considerations This includes contraindications, precautions, assessment and evaluation techniques, suggestions and treatment of side effects, promotion of patient comfort, preparation and administration of medications and storage points for each drug.

For example, "Entrophen is contraindicated with patients having GI bleeding. One precaution is to stop dosage one week before elective surgery. Administration information includes giving Entrophen with food, milk, or antacid to reduce GI side effects."

- f) alcohol content Many liquid preparations for oral use contain alcohol. Sometimes alcohol can be undesirable especially if patients are receiving CNS depressants like barbiturates. To help prevent potentially harmful exposure to alcohol an asterisk (\*) follows the generic name of the drug if its liquid form contains alcohol eg. Dimacol\* an antitussive drug.

- g) tartrazine content Tartrazine is a common coloring agent, usually yellow. 1 in 10,000 people have an allergic reaction to the dye.

The double asterisk (\*\*) indicates a drug containing tartrazine eg. Serax\*\* an antianxiety medication.

###### **ii) Summary:**

- find the medication in the purple colored index, note page number given.
- locate the page number in the white pages.
- research the medication.

Nursing 86 Drug Handbook, Pennsylvania 1986, Springhouse Corporation.

# Administer Oral Medication Using a Controlled Dosage/Unit Dose System

## Article 9

### EXERCISE 9

Fill in the appropriate spaces:

#### Research Medications

MEDICATION	TRADE NAME	GENERIC NAME	THERAPEUTIC DOSAGE	DESIRED ACTION	SIDE EFFECTS	CONTRAIND- ICATIONS	DRUG INTERACTIONS
1. Furosemide							
2. Inderal							
3. Surmontil							
4. Diabinese							
5. Lanoxin							

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 10:** Describe each of the medications listed in Exercise 10 by:

- a) drug classification
- b) generic name
- c) trade name
- d) therapeutic dosage
- e) desired action
- f) side effects
- g) drug interactions
- h) nursing considerations

**Learner Activity:**

**Exercise:**

- i) Develop index cards for drugs listed in **Exercise 10** "Develop Index Cards"
- ii) Research the medications using the CPS and/or your text **Nursing 86 Drug Handbook (or other resource material)**

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Exercise 10

#### Develop Index Cards

##### Sample Index Card

DRUG CLASSIFICATION:

GENERIC NAME:

TRADE NAME:

THERAPEUTIC DOSAGE:

DESIRED ACTION:

SIDE EFFECTS:

DRUG INTERACTIONS:

NURSING CONSIDERATIONS:

DRUG CLASSIFICATION: *Laxative*

GENERIC NAME: *docusate calcium*

TRADE NAME: *Surfak*

THERAPEUTIC DOSAGE: *240 mg. p.o. daily until bowel movements are normal*

DESIRED ACTION: *Softens stool*

SIDE EFFECTS: *EENT: throat irritation*  
*GI: bitter taste, mild abdominal cramping, diarrhea*  
*Other: laxative dependence*

DRUG INTERACTIONS: *non significant*

NURSING CONSIDERATIONS: *instruct patients of dietary sources of bulk, discontinue if severe cramping occurs, protect from light.*

##### Surfak Index Card

###### Example 4

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Exercise 10

#### Develop Index Cards

- a) Develop index cards for the following 5 medications:
- Aldomet
  - HydroDiuril
  - Riopan
  - Tagamet
  - Vasodilan
- b) Develop index cards on 5 of the following medications. Compare the list of medications to the medication profile/kardex in your institution to decide which drugs you would like to research.

#### Medications

Aldactone	Feldene	Orinase
Amphojel	Gravol	Ovral
Ampicillin	Inderal	Phenergan
Benadryl	Indocid	Potassium Salts
Calcium Gluconate	Isordil	Seconal
Cloxacillin Sodium	Lasix	Sinequan
Cogentin	Librax	Surfak
Cortisone Acetate	Maalox	Synthroid
Diabinese	Medrol	Tegretol
Digoxin	Metamucil	Tessalon
Dilantin	Methotrexate	Thorazine
Dulcolax	Motrin	Tylenol
Elavil	Multivitamin	Valium
Entrophen	Mycostatin	

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Exercise 10

#### Develop Index Cards

- c) Develop 5 index cards on oral medications common to your institution but omitted from the list.

#### Note:

- \* The lists provided do not stress the most important medications and are not intended to be comprehensive.
- \*\* Index cards are kept in your uniform pocket for quick reference on medications. **Every medication has to be researched prior to preparation and administration.** Place the CPS and or Nursing Drug Handbook on your medication cart or in your medication room.
- \*\*\* Index cards or bibliography cards can be bought at bookstores. Both sides of the cards can be written on so all drug information may be visible.

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 11:** Identify the unit dose (individual package) method of medication delivery.

**Learner Activity:**

**Article:** Read **Article 10**  
"The Unit Dose System of Medication Delivery"

**Exercise:** Complete **Exercise 11**  
"The Unit Dose System"

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 10

#### The Unit Dose System of Medication Delivery

The unit dose system is a system of dispensing premeasured, prepackaged, prelabelled portions of drugs for each individual patient. It is one of the safest ways of administering medications. The generic/trade name, dosage, route, expiry date of each medication plus the patient's and doctor's names and patient's room and identification numbers are typed on each dose.

The labelling and packaging is performed by pharmacy. The unit dose is either dispensed centrally, in one department, or by a decentralized method of a satellite pharmacy in each patient care area.

Each unit dose package contains the ordered amount of a drug for a single administration in the proper form and by the correct route.

All medications, tablets, liquids, narcotics, and lotions can be supplied in unit dose. There are even prefilled syringes available.

The unit dose may be placed in a portable medication cart with individual drawers for each patient. (See Figure 4, p. 67)

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 10

The Unit Dose System of Medication Delivery



Medication Cart

Figure 4

Perry, Anne G., and Potter Anne G., Fundamentals of Nursing, St. Louis, 1985, C.V. Mosby Co.

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 10

#### The Unit Dose System of Medication Delivery

The nursing staff uses the medication profile, a record of all drugs a patient is receiving, finds the correct drug, and wheels the cart to the right patient using the profile and patients ID band for identification. (See Example 5)

#### Example 5

EXTENDED CARE CENTRE

#### **MEDICATION PROFILE**

	Date & Time Discontinued	MEDICATION & DOSAGE	Date Ordered	I.D.	SPECIAL CONSIDERATIONS
QD		Digoxin 0.125 mg. p.o.			
		q.d.			
BID		HydroDiuril 50 mg. p.o.			
		b.i.d.			
TID					
QID		Aldactone 25 mg. p.o.			
		q.i.d.			
HS		Dulcolax 5 mg. p.o. hs.			

#### **UNUSUAL ADMINISTRATION TIMES**

Date & Time Discontinued	MEDICATION & DOSAGE	Date Ordered	INITIAL DOSAGE	SPECIAL CONSIDERATIONS
	Cloxacillin 500 mg.			
	p.o. q6h.for infection			

Adapted from  
District 24 Pharmacy  
Edmonton, Alberta

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 10

Exercise 11

Unit Dose System

Answer the Following Questions:

1. Who labels and packages the unit dose medications?

\_\_\_\_\_

2. What does each unit dose package contain?

\_\_\_\_\_

\_\_\_\_\_

3. What information is contained on the unit dose label?

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

4. What information is in a medication profile?

\_\_\_\_\_

\_\_\_\_\_

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 10

Exercise 11

**ANSWER SHEET**  
Unit Dose System

Answer the Following Questions:

1. Who labels and packages the unit dose medications?

Pharmacy

2. What does each unit dose package contain?

The ordered amount of a drug for a single  
administration.

3. What information is contained on the unit dose label?

1. generic/trade name

2. dosage

3. route

4. expiratory date

5. patient's and doctor's names

6. patient's room and identification number

4. What information is in a Medication Profile?

A record of all drugs a patient is receiving.

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 12:** Identify the controlled dosage (blister pak card) method of medication delivery.

**Learner Activity:**

**Article:** Read **Article 11**  
"The Controlled Dosage System of Medication Delivery"

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 11

#### The Controlled Dosage System of Medication Delivery

The controlled dosage system is a systematic method of controlling the distribution of medication.

It consists of blister pak cards and blisters. The pharmacist places each tablet or capsule into each blister, folds the card and pressure seals it with a thermostatically controlled heat seal machine.

This system is based on the concept that the majority of medications are administered at basic times of the day. At the nursing station, there is a file for each medication time and the blister pak card is held to it with a clip. Each card contains a certain number of doses of medication for a patient eg. 9/30/34. A T.I.D. medication, for example, would have three blister pak cards each stored on a different file for a different administration time.

All blister pak cards are stored on the files in order of medication pass sequence i.e. patient room or table number. The file is then placed on the mobile cart when administering medication.

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1752 St. James Street  
Winnipeg, Manitoba  
R3H 0L3



**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 13:** Identify the advantages and disadvantages of the unit dose and controlled dosage systems.

**Learner Activity:**

**Article:** Read **Article 12**  
"The Advantages and Disadvantages of the Unit Dose and Controlled Dosage Systems"

**Exercise:** Complete **Exercise 12**  
"Advantages and Disadvantages"

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 12

#### The Advantages and Disadvantages of the Unit Dose and Controlled Dosage Systems

**(i) The Advantages of the Unit Dose and Controlled Dosage Systems are:**

- a) saves preparation time.
- b) increases speed of delivery of medications.
- c) allows more time for patient care.
- d) avoids overstocking. They decrease the amount of floor stock required and used.
- e) reduces medication errors as the pharmacy evaluates and interprets written orders, while considering the medication dosage, drug compatibility and patient history.

**(ii) The Disadvantages of the Unit Dose and Controlled Dosage Systems are:**

- a) increases cost.
- b) increases the storage space required. (eg. for cart)
- c) delays the receiving of medications. This delay may be due to the doctor's order sheet not being delivered promptly or the order not being filled as soon as possible.
- d) use of the cart. (heavy, noisy at night)

In conclusion, there are advantages and disadvantages in any medication delivery system. Hospitals and institutions may adopt a modified form. Utilize the procedure manual to prepare and administer medications safely.

You are still responsible for giving a patient's medication safely. Remember "No System Is A Substitute For Safe Nursing Care."

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 12

Exercise 12

Advantages and Disadvantages

1. List the 5 Advantages of the Unit Dose/Controlled Dosage Systems:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

2. List the 4 Disadvantages of the Unit Dose/Controlled Dosage Systems:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 12

Exercise 12

ANSWER SHEET

Advantages and Disadvantages

1. List the 5 Advantages of the Unit Dose/Controlled Dosage Systems:

1. saves preparation time
2. increases speed of delivery
3. allows more time for patient care
4. avoids overstocking
5. reduces medication errors

2. List the 4 Disadvantages of the Unit Dose/Controlled Dosage Systems:

1. increases cost
2. increases the storage space required
3. delays the receiving of medications
4. use of the cart (noisy, heavy)

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 14:** Identify the components of a controlled dosage system:

- a) blister pak card (bubble card, pharmacard)
- b) blister (bubble)
- c) label
- d) clip
- e) file
- f) divider card
- g) orange blister pak card (pharmacard #2)
- h) medication cart
- i) medication profile
- j) replacement basket

**Learner Activity:**

**Article:** Read **Article 13**  
"Components of the Controlled Dosage System"

**Exercise:** Complete **Exercise 13**  
"Match the Items of a Controlled Dosage System"

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 13

#### Components of the Controlled Dosage System

- a) Blister Pak Card  
(bubble card)      A card with foil backing used for packaging oral solids. Each card can contain as many as 30 or 34 doses of a medication. Each dose is numbered with the first one being given starting at the highest number i.e. 30 or 34. One card is supplied for each medication time, i.e. a b.i.d. medication will have two cards on two different files. There are also administration instructions along the top of the card eg. with milk. The cards are arranged on the file according to the order medications are passed ie. room or table number. (See Example 6 p. 79)
- b) Blister      A plastic sheet with bubbles. This sheet is inserted into the blister pak card. Each blister holds one complete dose, eg. one tablet, a half tablet or two capsules. Amber blisters protect medications from light. (See Example 6 p. 79)
- c) Label      Information attached to the blister pak card contains the following:  
Patient's name, nursing unit, room and bed number, doctor's name, date of issue, medication trade and generic names, dosage and directions. (See Example 6 p. 79)
- d) Clip      A plastic holder for a blister pak card.

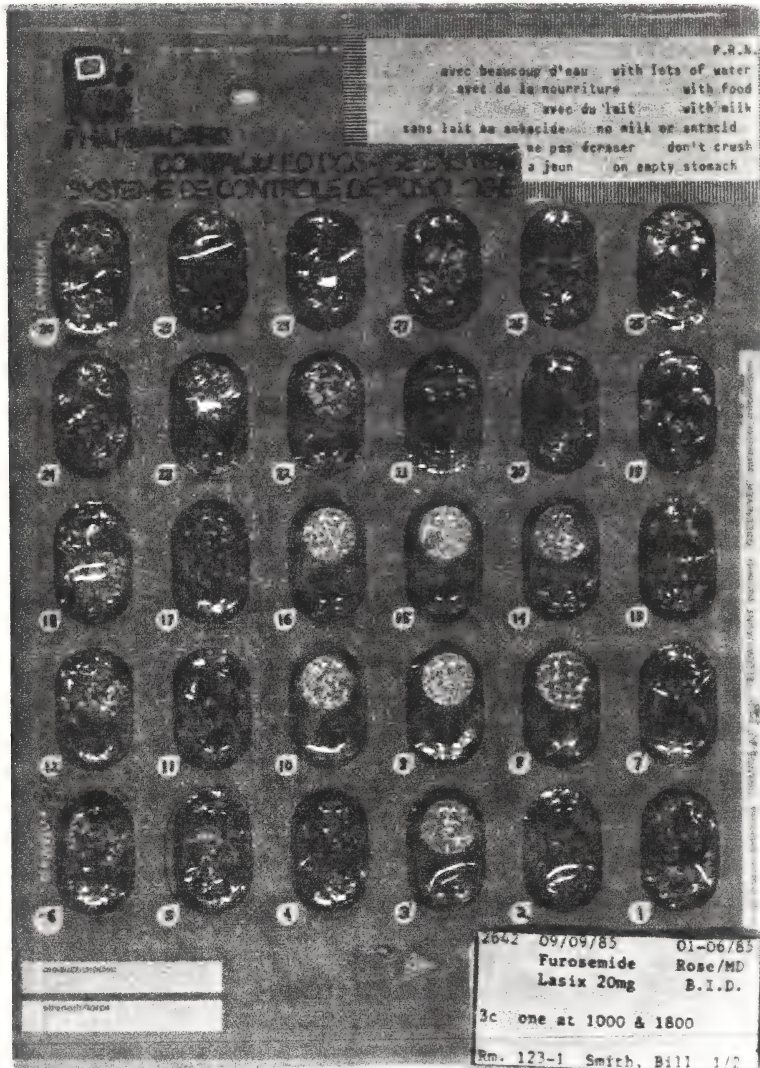


Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 13

Example 6

Blister Pak Card





## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 13

#### Components of the Controlled Dosage System

e) File

A wire metal frame which holds the clip and thus the blister pak card. (See Figure 5, p. 81)

The file is attached to the cart when administering medications or stored in the medication room. (See Figure 6, p. 81)

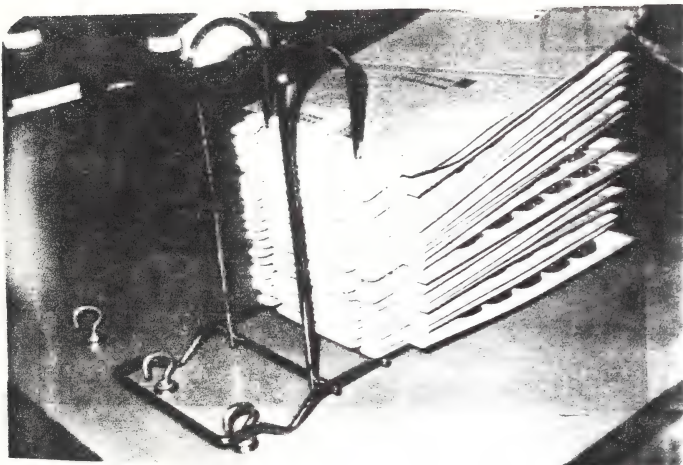
The files are categorized into routine administration times and labelled. For example Surmontil 25 mg. p.o. t.i.d. will have three different cards on three different files. These files may be labelled 0800, 1200, and 1700 hrs.

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

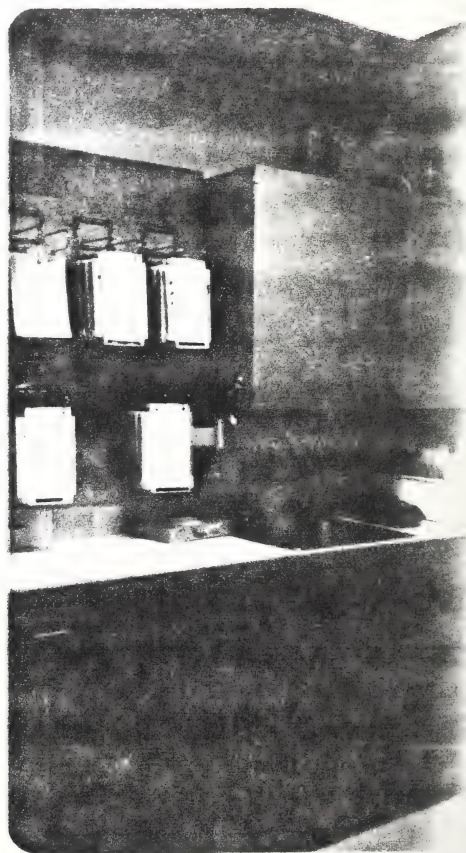
Article 13

Components of the Controlled Dosage System

File  
Figure 5



File Storage  
Figure 6



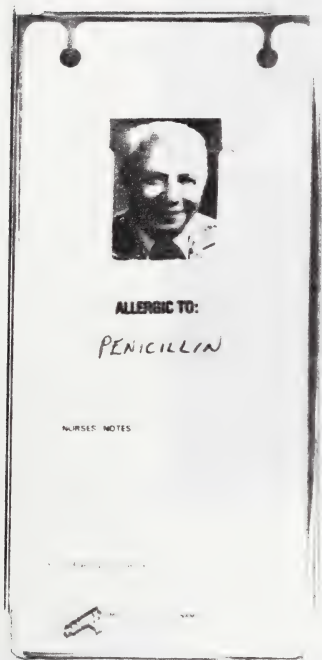
## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 13

#### Components of the Controlled Dosage System

##### f) Divider Card

A plastic card which separates each patients medications from other patients on the file. The card can also be labelled to indicate administration times ie. "before lunch" and placed in the front of the appropriate file. Information concerning allergic reactions or the patients photograph may be attached to the card. (See Figure 7)



Divider Card  
Figure 7

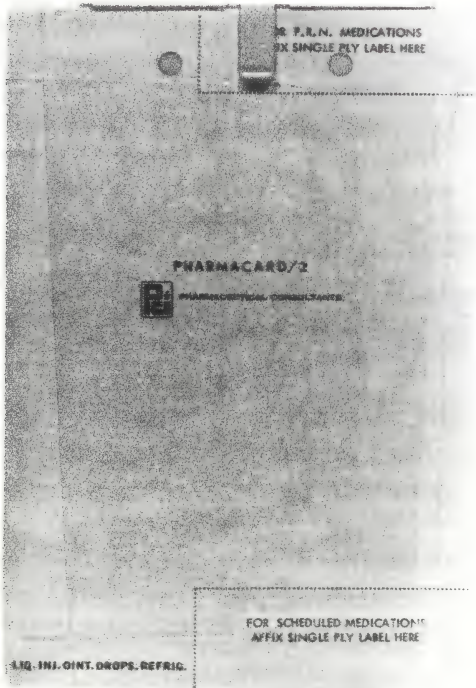
# Administer Oral Medication Using a Controlled Dosage/Unit Dose System

## Article 13

### Components of the Controlled Dosage System

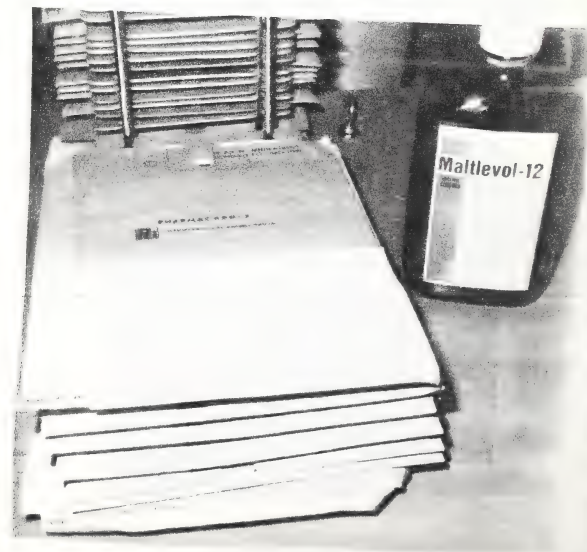
#### g) Orange Blister Pak Card

Reminder cards for routinely administered liquid medications and treatments. (Pharmacard #2) (See Figures 8, 9)



Orange Card  
Figure 8

Orange Card  
Figure 9





## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 13

#### Components of the Controlled Dosage System

##### h) Medication Cart

A cart which is used to store and deliver medications. (See Figure 10)



Medication Cart

Figure 10

##### i) Medication Profile

A list of a patient's medications. (See Example 5, p. 68, objective 11)

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 13

#### Components of the Controlled Dosage System

##### j) Replacement Basket

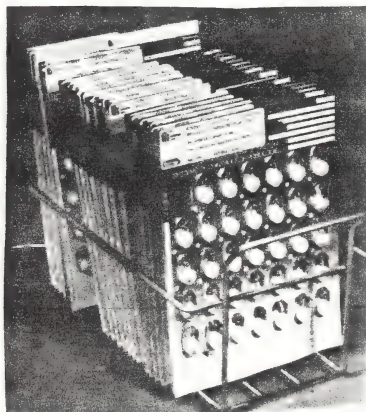
Plastic basket for replacement blister pak cards. (See Figures 11, 12)



Replacement Basket  
Figure 11

Replacement Basket  
Figure 12

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 13

Exercise 13

Match The Items of a Controlled Dosage System

Match the items in Column A with the description in Column B:

Column A

Column B

- |                             |  |
|-----------------------------|--|
| 1. _____ file               | a) metal frame to hold cards                 |
| 2. _____ blister pak card   | b) bubble                                    |
| 3. _____ blister            | c) plastic holder                            |
| 4. _____ divider card       | d) card labelled with<br>administration time |
| 5. _____ medication profile | e) list of medications                       |
| 6. _____ clip               | f) card for oral solids                      |
| 7. _____ orange card        | g) reminder card for "pourables"             |

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 13

Exercise 13

ANSWER SHEET

Match The Items of a Controlled Dosage System

Match the items in Column A with the description in Column B:

<u>Column A</u>	<u>Column B</u>
1. <u>  a  </u> file	a) metal frame to hold cards
2. <u>  f  </u> blister pak card	b) bubble
3. <u>  b  </u> blister	c) plastic holder
4. <u>  d  </u> divider card	d) card labelled with administration time
5. <u>  e  </u> medication profile	e) list of medications
6. <u>  c  </u> clip	f) card for oral solids
7. <u>  g  </u> orange card	g) reminder card for "pourables"

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 15:** Identify components of a doctor's order for oral medication using a controlled dosage/unit dose system.

**Learner Activity:**

**Article:** Read Article 14  
"Components of a Doctor's Order"

**Exercise:** i) Complete Exercise 14  
"Interpret Doctor's Orders"

ii) Complete Exercise 15  
"Identify Information Missing from the Medication Profile"

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 14

#### Components of a Doctor's Order

A physician writes an ORDER for the administration of medications to a patient. Because orders are written using abbreviations, it is very important that nursing staff know ALL SYMBOLS and ABBREVIATIONS used in drug pharmacology.

Each order will contain the following information but not necessarily in this order:

1. Medication name.
2. Dosage of medication to be given.
3. Route of medication to be given.
4. How often the medication is to be given.
5. The reason for the medication (optional)

eg. Cloxacillin 500 mg. p.o. q.6h. for infection

- |    |             |   |                 |
|----|-------------|---|-----------------|
| 1. | Cloxacillin | = | medication name |
| 2. | 500 mg.     | = | dosage          |
| 3. | p.o.        | = | route           |
| 4. | q.6h.       | = | how often       |
| 5. | infection   | = | reason          |

There are two types of written doctor's orders which are (1) **self-terminating** and (2) **standing orders**.

**Self-terminating orders** have a limit imposed on their function. This limit may be a time stipulation, eg. Erythromycin 250 mg. p.o. q.6h. for 7 days. Some unit's policies place time limits on orders, eg. discontinue antibiotics after 7 or 10 days.

**Standing orders** are orders routinely applied to each patient of a specific doctor. eg. Surfak  $\dot{=}$  capsule h.s. for patients of Dr. Snow.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 14

#### Components of a Doctor's Order

When an order is discontinued, the physician writes the medication as discontinued in the doctor's order sheet. The RN or unit clerk transcribes the order as discontinued in the medication profile. (See Example 7 p. 91)

Written orders are protection to everyone concerned with medication, the patient, physician, pharmacist, RN, RNA, and student nurse. They constitute permanent legal records that can be referred to as often as necessary or submitted as evidence in case of litigation.

The RN or unit clerk transcribes the order to the medication profile. The RNA may have to check doctor's orders when preparing and administering medications, especially if there is a doubt.

**No RN or RNA may alter** a physician's order. The RNA must not go ahead and give a medication, if there is doubt there may be an error.

On the other hand the **order cannot be disregarded**. If you are unable to read the order on the doctor's order sheet or medication profile check with the doctor and T.L..

Seek clarification, eg. q.d. may appear as q.i.d., Valium as Valpin. Ask if in doubt!

Duff, D.L. and Aylward, J.M., A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 14

Example 7

Doctor's Order Sheet

**DRUG ALLERGIES**

**ADDRESSOGRAPH**

DATE & TIME	PHYSICIAN'S ORDERS	PROGRESS RECORD
June 6/86	Cloxacillin 500 mg. p.o.	Has an elevated
	q.6h. for infection	Temperature 37.8-38°C
	Remains on bedrest	
	Dr. Rose	
June 13/86	Discontinue Cloxacillin	
	Dr. Rose	

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# Administer Oral Medication Using a Controlled Dosage/Unit Dose System

## Article 14

### Exercise 14

#### Interpret Doctor's Orders

Interpret the following doctor's orders:

#### DRUG ALLERGIES

#### ADDRESSOGRAPH

DATE & TIME	PHYSICIAN'S ORDERS	PROGRESS RECORD
Oct. 4, 86		
1)	Furosemide 40 mg. p.o. b.i.d.	
2)	Slow K $\frac{1}{1}$ tab. p.o. q.2 days	
3)	Valium 5 mg. p.o. q.i.d.	
4)	Digoxin 0.125 mg. p.o. q.d.	
5)	Multivites $\frac{1}{1}$ tab. p.o.q.d.	
6)	Chlorpromazine 25 mg. p.o. t.i.d.	
7)	Surfak $\frac{1}{1}$ cap. p.o. h.s. Dr. Rose	

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 14

Exercise 14

ANSWER SHEET  
Interpret Doctor's Orders

Interpret the following doctor's orders:

**DRUG ALLERGIES**

**ADDRESSOGRAPH**

DATE & TIME	PHYSICIAN'S ORDERS	PROGRESS RECORD
Oct. 4, 86		
1)	Furosemide 40 mg. p.o. b.i.d.	
2)	Slow K $\frac{1}{1}$ tab. p.o. q 2 days	
3)	Valium 5 mg. p.o. q.i.d.	
4)	Digoxin 0.125 mg. p.o. q.d.	
5)	Multivites $\frac{1}{1}$ tab. p.o. q.d.	
6)	Chlorpromazine 25 mg. p.o. t.i.d.	
7)	Surfak $\frac{1}{1}$ cap. p.o. h.s. Dr. Rose	

1. Furosemide 40 mg. orally twice a day.
2. Slow K one tablet orally every two days.
3. Valium 5 mg. by mouth four times a day.
4. Digoxin 0.125 mg. by mouth every day.
5. Multivites one tablet by mouth every day.
6. Chlorpromazine 25 mg. orally three times a day.
7. Surfak one capsule orally at bedtime.

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 14

Exercise 15

Identify Information Missing From the Medication and Dosage Section of the Medication Profile.

**MEDICATION PROFILE**

	DATE & TIME DISCONTINUED		MEDICATION AND DOSAGE	DATE ORDERED		I.D.		SPECIAL CONSIDERATION
QD		1	Digoxin p.o. q.d.	Oct. 4/86	6M			Withhold - notify
								Dr. Rose if Apical
								rate below 60
BID		2	10 mg. p.o. b.i.d.	Oct. 4/86	6M			
TID		3	Surmontil p.o. t.i.d.	Oct. 4/86	6M			

Write down what information is missing from the medication profile.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 14

Exercise 15

Identify Information Missing From the Medication and Dosage Section of the Medication Profile.

	DATE & TIME DISCONTINUED	MEDICATION AND DOSAGE	DATE ORDERED		I.D.		SPECIAL CONSIDERATION
QID		4 Entrophen 650 mg.	Oct. 4/86				
		q.i.d.					
HS		5 Surfak $\frac{1}{1}$ cap. p.o.					
		6 Cloxacillin 250 mg.	Oct. 4/86	6M			
		p.o.					

Write down what information is missing from the medication profile.

4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

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**Administer Oral Medication Using a Controlled Dosage/Unit Dose System**

**Article 14**

**Exercise 15**

**ANSWER SHEET**

**Identify Information Missing From the Medication and Dosage Section of the Medication Profile.**

Write down what information is missing from the medication profile.

1.    Dosage
2.    Name of medication
3.    Dosage
4.    Route
5.    Time
6.    Time

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 16:** Identify safety factors when preparing an oral medication using a controlled dosage system/unit dose system following agency policy:

- a) gather data
- b) follow agency policy
- c) maintain a safe environment
- d) utilize medical aseptic technique
- e) select the correct file from the medication room or select the correct unit dose package from the medication cart
- f) read the label on the blister pak/unit dose package 3 times while comparing against the medication profile/doctor's order
- g) follow the "5 Rights"
  - i) Right Drug
  - ii) Right Dose
  - iii) Right Time
  - iv) Right Route
  - v) Right Patient
- h) separate conditional medications
- i) note modifications

**Learner Activity:**

**Article:** Read **Article 15**  
"Safety Factors When Preparing an Oral Medication"

**Exercise:** Complete **Exercise 16**  
"Match the Medication Profile to the Labels"

Complete **Exercise 17**  
"Safety Factors When Preparing an Oral Medication"

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 15

#### Safety Factors When Preparing an Oral Medication

##### a) Gather Data:

- i) read the patient's **medication profile**.
- ii) identify if the patient has a history of **allergies, cross sensitivity, tolerance and/or dependence** to medications and food.
- iii) research the medication's **generic and trade names, action, desired and adverse effects, precautions, drug interactions, contraindications and nursing considerations**. Be aware of any **specific** administrative **directions** i.e. Digoxin is withheld if the apical pulse is below 60 beats/min. Write all the above information on your index card and place in your uniform pocket.
- iv) **know the purpose** of the drug in relation to a patient's baseline data. eg. the patient's blood pressure in order to evaluate the effectiveness of an antihypertensive.
- v) review **abbreviations** and **symbols** related to medications.
- vi) keep the CPS and/or Drug Handbook on the medication cart.
- vii) use the **C.P.S., pharmacy inserts, your drug handbook** and if necessary the pharmacist.
- viii) note **visual identification** of medication if included in the C.P.S.

##### b) Follow Agency Policy:

- i) know **which medications** may be given by a RNA.
- ii) review **hospital policy** for medication delivery.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 15

#### Safety Factors When Preparing an Oral Medication

- c) Maintain a Safe Environment:
- i) organize equipment.
  - ii) concentrate on task.
  - iii) only prepare medications **you** will administer.
- d) Utilize Medical Aseptic Technique:
- i) wash hands.
  - ii) use clean medication cups.
  - iii) use a clean surface of the cart.
- e) Select the Correct File From the Medication Room OR Select the Correct Unit Dose Package from the Medication Cart:
- i) compare the time on the file against the time stated on the wall storage area or compare the name on the drawer of the cart against the name on the package.
  - ii) read the labels 3 times.
- f) Read the Label on the Blister Pak/Unit Dose Package 3 Times While Comparing Against The Medication Profile/Doctor's Order:
- i) note the patient's identification and room number, medication name, dosage, administration time and doctor's name.
  - ii) read the label 3 times:
    1. on obtaining the blister pak card/unit package.
    2. on dropping the medicine into the medication cup.
    3. on flipping the blister pak card over on the file or on placing the empty unit dose package in the garbage.

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 15

#### Safety Factors When Preparing an Oral Medication

g) Follow the Five Rights:

i) Right Drug

- read the label on the blister pak card/unit dose package against the doctor's order/medication profile. (See Example 8, p. 102)
- note if generic and trade names coincide. (See Example 9, p. 102)
- note spelling and expiry date (See Example 10, p. 102)
- report to the T.L. if the drug is outdated, it's color or form has changed or if its blister or package is cracked or broken. Many a medication error has been prevented by a nurse questioning the appearance of a drug. eg. "It doesn't look right."
- report to the T.L. if the label is unreadable and obtain a new card or package.
- use only medication from the patient's own card or package.
- discard spoiled drugs as per agency policy. (a witness may be required ie. RN or RPA and/or a hopper may be the place of disposal).

ii) Right Dose

- read the label on the blister pak card/unit dose package against the doctor's order/medication profile.
- note the dosage.
- note dosage points, Digoxin 0.125 mg. p.o.q.d. differs from Digoxin 0.25 mg. p.o.q.d.

iii) Right Time

- read the label on the blister pak card/unit dose package against the doctor's order/medication profile.

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 15

#### Safety Factors When Preparing an Oral Medication

- g) Follow the Five Rights:  
(Cont'd)
- iii) Right Time
- note directions for administration  
eg. Digoxin 0.125 mg. p.o.q.d.  
withhold if apical beat below 60  
beats/min.
  - check agency policy for admin-  
istration times eg. t.i.d. may  
indicate 0800, 1200, 1700, or 1000,  
1400, 1800 hrs.
- iv) Right Route
- read the label on the blister pak  
card/unit dose package against the  
doctor's order/medication profile.
  - note the oral abbreviation "p.o."
- v) Right Patient
- read the label on the blister pak  
card/unit dose package against the  
doctor's order/medication profile.
  - check the patient's name, room  
and identification number. (See  
Example 11, p. 102)
- h) Separate Conditional  
Medications:
- i) Note Modifications:
- i) read administration directions on  
the blister pak card/unit dose  
package/medication profile eg. food,  
fluid, or crushing required (See  
Example 6, p. 79, objective 11)

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 15

#### Safety Factors When Preparing an Oral Medication

##### Example 8

###### MEDICATION PROFILE

Date & Time Discontinued	MEDICATION & DOSAGE	Date Ordered	I.D.	SPECIAL CONSIDERATIONS
	Valium 5 mg. p.o. b.i.d.	25/8/86	6M	N/A

**\*Read the Medication in the Medication Profile.**

##### Example 9

Bill Smith 4A 426  
One Tablet Twice Daily  
Diazepam 5 mg. July 5, 1986 Dr. Rose  
(Valium) Diazepam 5 mg. tabs. 1/2  
24678 1-19 .256m

**\*Note if the medication's generic and trade names coincide.**

##### Example 10

Valium 5 mg.

Valpin 5 mg.

**\*Note the similar spelling of these two different medications.**

##### Example 11

Jane Frolic  
7410707  
Rm. 2110 - 1

Janice Frolt  
7470107  
Rm. 2111 - 0

**\*Note the similar names, room and identification numbers of these two patients.**

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**Administer Oral Medication Using a Controlled Dosage/Unit Dose System****Article 15****Exercise 16****Match the Medication Profile to the Labels (Labels on p. 104, 105)****MEDICATION PROFILE**

	Date & Time Discontinued	MEDICATION & DOSAGE	Date Ordered	I.D.	SPECIAL CONSIDERATIONS
QD		1 Digoxin 0.125 mg. p.o.	1/1/86		
		q.d.			
		2 Aldactone 50 mg.p.o.q.d.	1/1/86		
BID		3 Lasix 20 mg. p.o.b.i.d.	1/1/86		
TID		4 Valium 5 mg. p.o. t.i.d.	1/1/86		
QID					
HS		5 Chloral Hydrate 250 mg.	1/1/86		
		p.o. h.s.			

**UNUSUAL ADMINISTRATION TIMES**

	Date & Time Discontinued	MEDICATION & DOSAGE	Date Ordered	INITIAL DOSAGE	SPECIAL CONSIDERATIONS
		6 Erythrocin 500 mg.p.o. q6h	1/1/86	6M	
		7 ASA 325 mg. p.o. for	q8h 1/1/86		
		three days			

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 15

Exercise 16

Match the Medication Profile to the Labels

SPIRONOLACTONE 25 mg. tabs.  
(ALDACTONE)  
24676 1-29 276B

Bill Smith 4D 401  
Two tablets: Once a day

Jan. 01/86. Dr. Rose  
ALDACTONE 25 mg. tabs.  
1/1

No. \_\_\_\_\_

CHLORAL HYDRATE 250 mg. cap. Bill Smith 4D 401  
24676 1-29 276B One Tablet at Night  
Jan. 01/86 Dr. Rose  
CHLORAL HYDRATE 250 mg.  
cap.

1/1

No. \_\_\_\_\_

DIGOXIN 0.125 mg. tab.  
24676 1-29 276B

Bill Smith 4D 401  
One Tablet once a day  
Jan. 01/86 Dr. Rose  
DIGOXIN 0.125 mg. tabs.  
1/1

No. \_\_\_\_\_

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 15

Exercise 16

Match the Medication Profile to the Labels

ASA  
(ASPIRIN) 325 mg. tab.  
24676 1-29 276B

Bill Smith 4D 401  
One Tablet every eight  
hours for three days  
Jan. 01/86 Dr. Rose  
ASPIRIN 325 mg. tabs.  
1/1

No. \_\_\_\_\_

DIAZEPAM 5 mg. tab.  
(VALIUM)  
24676 1-29 276B

Bill Smith 4D 401  
One Tablet three times  
a day  
Jan. 01/86 Dr. Rose  
VALIUM 5 mg. tabs.  
1/1

No. \_\_\_\_\_

ERYTHROMYCIN 250 mg. tabs.  
(ERYTHROCIN)  
24676 1-29 276B

Bill Smith 4D 401  
Two tablets every six hrs.  
  
Jan. 01/86. Dr. Rose  
ERYTHROCIN 250 mg. tabs.

No. \_\_\_\_\_

FUROSEMIDE 20 mg. tabs.  
(LASIX)  
24676 1-29 276B

Bill Smith 4D 401  
One Tablet twice a day  
Jan. 01/86 Dr. Rose  
LASIX 20 mg. tabs.  
2/2

No. \_\_\_\_\_

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 15

Exercise 16

ANSWER SHEET

Match the Medication Profile to the Labels

SPIRONOLACTONE 25 mg. tabs.  
(ALDACTONE)  
24676 1-29 276B

Bill Smith 4D 401  
Two tablets: Once a day

Jan. 01/86. Dr. Rose  
ALDACTONE 25 mg. tabs.  
1/1

No. 2

CHLORAL HYDRATE 250 mg. cap.  
24676 1-29 276B

Bill Smith 4D 401  
One Tablet at Night  
Jan. 01/86 Dr. Rose  
CHLORAL HYDRATE 250 mg.  
cap.  
1/1

No. 5

DIGOXIN 0.125 mg. tab.  
24676 1-29 276B

Bill Smith 4D 401  
One Tablet once a day  
Jan. 01/86 Dr. Rose  
DIGOXIN 0.125 mg. tabs.  
1/1

No. 1

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 15

Exercise 16

ANSWER SHEET

Match the Medication Profile to the Labels

ASA  
(ASPIRIN) 325 mg. tab.  
24676 1-29 276B

Bill Smith 4D 401  
One Tablet every eight  
hours for three days  
Jan. 01/86 Dr. Rose  
ASPIRIN 325 mg. tabs.  
1/1

No. 7

DIAZEPAM 5 mg. tab.  
(VALIUM)  
24676 1-29 276B

Bill Smith 4D 401  
One Tablet three times  
a day  
Jan. 01/86 Dr. Rose  
VALIUM 5 mg. tabs.  
1/1

No. 4

ERYTHROMYCIN 250 mg. tabs.  
(ERYTHROCIN)  
24676 1-29 276B

Bill Smith 4D 401  
Two tablets every six hrs.  
  
Jan. 01/86. Dr. Rose  
ERYTHROCIN 250 mg. tabs.

No. 6

FUROSEMIDE 20 mg. tabs.  
(LASIX)  
24676 1-29 276B

Bill Smith 4D 401  
One Tablet twice a day  
Jan. 01/86 Dr. Rose  
LASIX 20 mg. tabs.  
2/2

No. 3

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 15

Exercise 17

Safety Factors When Preparing an Oral Medication

Fill in the Blanks:

1. Read the label \_\_\_\_\_ times while comparing against the medication profile/\_\_\_\_\_.
2. Read the label for the First Time as you \_\_\_\_\_.
3. Read the label, for the Second Time as you \_\_\_\_\_ or \_\_\_\_\_.
4. List the "Five Rights":
  1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
  4. \_\_\_\_\_
  5. \_\_\_\_\_
5. \_\_\_\_\_ if the drug is outdated, color or form has changed or if its blister or package is \_\_\_\_\_.

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 15

Exercise 17

ANSWER SHEET

Safety Factors When Preparing an Oral Medication

Fill in the Blanks:

1. Read the label 3 times while comparing against the medication profile/ doctor's order.
2. Read the label for the First Time as you obtain the blister pak card/unit package.
3. Read the label, for the Second Time as you flip the blister pak card over on the file or on placing the empty unit dose package in the garbage.
4. List the "Five Rights" :
  1. Right Drug
  2. Right Dose
  3. Right Time
  4. Right Route
  5. Right Patient
5. Report to the T.L. if the drug is outdated, color or form has changed or if its blister or package is cracked or broken.

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 15

Exercise 17

Safety Factors When Preparing an Oral Medication

Fill in the Blanks: (Cont'd.)

6. \_\_\_\_\_ spoiled drugs into the \_\_\_\_\_.
7. Note \_\_\_\_\_ on checking if the drug is the "Right Dose".
8. Note \_\_\_\_\_ and agency times on checking if the drug is being given the "Right Time".
9. Note the patient's name, \_\_\_\_\_ and \_\_\_\_\_ number on checking if the drug is being given to the "Right Patient".
10. Place medications whose administration is dependent upon specific criteria \_\_\_\_\_.
11. Administrative directions such as give with food, \_\_\_\_\_ or crushing required are written on the blister pak cards/unit dose packages.

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 15

Exercise 17

ANSWER SHEET

Safety Factors When Preparing an Oral Medication

Fill in the Blanks: (Cont'd.)

6. Discard spoiled drugs into the hopper.
7. Note dosage points on checking if the drug is the "Right Dose".
8. Note directions for administration and agency times on checking if the drug is being given the "Right Time".
9. Note the patient's name, room and identification number on checking if the drug is being given to the "Right Patient".
10. Place medications whose administration is dependent upon specific criteria in a separate medication cup.
11. Administrative directions such as give with food, fluid or crushing required are written on the blister pak cards/unit dose packages.

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 17:** Identify safety factors when administering an oral medication using a controlled dosage/unit dose system following agency policy:

- a) verify patient identification
- b) assess the patient
- c) communicate with the patient
- d) position the patient
- e) remain with the patient
- f) remain with the cart
- g) use the alert system (if required)
- h) utilize medical aseptic technique

**Learner Activity:**

**Article:** Read Article 16  
"Safety Factors When Administering an Oral Medication"

**Case Studies:** i) Complete the questions in Case Study 1  
"Difficult situations: She Swallowed it After All."  
ii) Complete the questions in Case Study 2  
" Mr. Jones"

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 16

#### Safety Factors When Administering An Oral Medication

##### a) Verify Patient Identification:

- i) read the patient's armband and compare to the medication profile. withhold the medication and notify the T.L. if the I.D. band is missing.
- ii) note patient's name, and identification number.
- iii) ask "What is Your Name?" Some patients will answer to any name. Others will rest on another's bed.
- iv) check both arms for allergy armbands, or medic alert tags.

##### b) Assess the Patient:

- i) withhold the medication and notify the T.L. if the patient is weak, helpless, nauseated, vomiting or having difficulty swallowing.
- ii) perform special administrative precautions before giving the medication eg. take apical pulse to see if it is above 60 beats/min. before giving Digoxin.
- iii) check if the patient is wearing devices to facilitate communication eg. hearing aid, eye glasses.

##### c) Communicate with the Patient:

- i) recheck the medication profile and doctor's order against the blister pak card/unit package if the patient appears unsure of his medication eg. states "What's this?"/"I get this at night."

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 16

#### Safety Factors When Administering an Oral Medication

- c) Communicate with the patient (Cont'd)
- ii) ask the patient if he has any allergies eg. "Do any pills make you ill?"
  - iii) reinforce any restrictions noted on the blister pak card/ unit package/ medication profile eg. no milk.
- d) Position the Patient:
- i) elevate the head of the bed or support the patient's neck in an upright position to prevent aspiration.
- e) Remain with the Patient:
- i) notify the T.L. if patient refuses or medication is unable to be administered. Follow agency policy for disposal routine of wasted medication.
  - ii) observe patient swallowing medication.
  - iii) check under patient's tongue, check hand or bed linen if necessary.
  - iv) administer only the medications you have prepared.
- f) Remain with the Medication Cart:
- i) keep the cart within eye contact.
- g) Use the Alert System: (if required, Controlled Dosage System)
- i) pull the blister pak card to the side by lifting the tab on the clip if patient unavailable or a refill is indicated.

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 16

#### Safety Factors When Administering an Oral Medication

##### h) Utilize Medical Aseptic Technique:

- i) discard wasted medication if it becomes contaminated ie. falls on the floor. Check agency policy regarding disposal routine.
  - witness may be required (RN/RNA)
  - a hopper may be designated as a place of disposal.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 16

#### Safety Factors When Administering an Oral Medication

##### Case Study 1

##### Difficult Situations: She swallowed it after all

Peggy Baker, LPN

Mrs. X had been involved in a very unusual situation. Her husband, now deceased, had been a physician and in order to keep her quiet he medicated her to such an extent that she became dependent on certain drugs. She listened intently to his every word and he convinced her she could not swallow anything except baby food.

She had been a resident for a short time and we had tried many means of feeding her an adequate diet and of getting her necessary medications down. Last evening I presented her with two medications not mushed up, but in capsules. I handed her a glass of water first, then one capsule, telling her it was only gelatine and easily swallowed. The first one disappeared "down the hatch," followed by a long drink of water. The second one disappeared in the same way. I felt successful. I made sure they were both down by engaging her in conversation for a few minutes and by keeping a close eye on her Kleenex which she keeps in her hand. She uses Kleenex sometimes to spit out her medicine.

1. What safety factors did the LPN follow when administering the medication?

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Barker, Peggy, "Difficult Situations. She swallowed it after all", Geriatric Care, 10:9 (September, 1978)

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 16

Safety Factors When Administering an Oral Medication

Case Study 1

ANSWER SHEET

Difficult Situations:

She swallowed it after all

Peggy Baker, LPN

Mrs. X had been involved in a very unusual situation. Her husband, now deceased, had been a physician and in order to keep her quiet he medicated her to such an extent that she became dependent on certain drugs. She listened intently to his every word and he convinced her she could not swallow anything except baby food.

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1. What safety factors did the LPN follow when administering the medication?

1. assessing the patient

2. remaining with the patient - checking the Kleenex for  
medication

Barker, Peggy, "Difficult Situations. She swallowed it after all",  
Geriatric Care, 10:9 (September, 1978)

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 16

#### Safety Factors When Administering an Oral Medication

#### Case Study 2

##### "Mr. Jones"

Mr. Jones is a 70 year old man who has a diagnosis of Rt. Hemiplegia. He has an order for Lasix 40 mg. p.o.q.d. at 0830 hrs. Mr. Jones is to be weighed daily.

1. When preparing his medication, Mr. Peters, his dinner partner begins telling you about *"the good old days."* He yells, "you're not listening to me." What do you say?

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2. On reading the label on the blister pak card you notice it states Furosemide 40 mg. p.o.q.d. What do you do?

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3. You accidentally drop the Lasix on the floor. Mr. Jones bellows *"Wipe it off and use it."* Waste not want not." What is your reply?

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 16

Safety Factors When Administering an Oral Medication

Case Study 2

"Mr Jones"

4. On checking Mr. Jones I.D. band, he mutters, *"Boy, you sure are slow. You have been here 6 months and you still don't know my name."* What is your reply?

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5. Mr. Jones decides he's going to leave his pill until he is going to physio at 1000 hrs., *"To give me that extra push."* What action do you take?

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6. What observation about his swallowing ability would effect how you would administer his medication?

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 16

#### Safety Factors When Administering an Oral Medication

#### Case Study 2

#### ANSWER SHEET

"Mr. Jones"

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1. When preparing his medication, Mr. Peters, his dinner partner begins telling you about *"the good old days."* He yells, *"you're not listening to me."* What do you say?

*"I'm sorry Mr. Peters, I'm trying to concentrate on giving*  
*Mr. Jones his pill. Once I give it, I'll be able to listen."*

2. On reading the label on the blister pak card you notice it states Furosemide 40 mg. p.o.q.d. What do you do?

*Check the medication name in the C.P.S. to see if Furosemide*  
*and Lasix are the same drug.*

3. You accidentally drop the Lasix on the floor. Mr. Jones bellows *"Wipe it off and use it. Waste not want not."* What is your reply?

*"It does seem like a waste but I have to use a clean pill to*  
*prevent you from getting an infection."*

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 16

Safety Factors When Administering an Oral Medication

Case Study 2

ANSWER SHEET  
"Mr Jones"

4. On checking Mr. Jones I.D. band, he mutters, *"Boy, you sure are slow. You have been here 6 months and you still don't know my name."* What is your reply?

*"I understand why you feel that way but I have to check your name to be sure I give the right pill to the right patient."*

\_\_\_\_\_

\_\_\_\_\_

5. Mr. Jones decides he's going to leave his pill until he is going to physio at 1000 hrs., *"To give me that extra push."* What action do you take?

i) Tell Mr. Jones that his pill is to help him *"pass his water or urine etc."* not to give him energy.

\_\_\_\_\_

ii) Remain and observe Mr. Jones swallow the Lasix.

\_\_\_\_\_

6. What observation about his swallowing ability would effect how you would administer his medication?

He has Rt. Hemiplegia so I would administer his medication on  
the right side of his mouth.

\_\_\_\_\_

\_\_\_\_\_

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 18:** Identify comfort factors when administering an oral medication using a controlled dosage/unit dose system:

- a) an adequate explanation
- b) adapt administration to the patient
- c) position the patient
- d) maintain a pleasing environment

**Learner Resource:**

**Article:** Read Article 17  
"Comfort Factors When Administering an Oral Medication"

**Case Study:** Complete the questions in Case Study 3, "What Do You Say"  
(Mr. Parker)

**Exercise:** Complete Exercise 18  
"Comfort Factors When Administering an Oral Medication"

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 17

#### Comfort Factors When Administering an Oral Medication

- a) An Adequate Explanation:
- i) check with the T.L. which information about a medication should be released or withheld from the patient.
  - ii) report patient questions to the T.L. for response.
  - iii) give simple explanations in a positive manner eg. "It is time to take your heart pill."
  - iv) tell the patient what actions he can do to facilitate taking the medication ie. "I'd like you to sit up in your chair, place your pill far back on your tongue and swallow 1/2 glass of this water."
- b) Adapt Administration to the Patient:
- i) note instructions on the blister pak card/unit package/medication profile eg. crush medication with food (See Example 6, Objective 14, p. 79)
  - ii) crush only medications that have no protective covering eg. Entrophen is an enteric-coated pill. The coating prevents gastric irritation and thus should not be crushed. Sustained-released capsules if crushed would result in the medication being given at one time.
  - iii) crush appropriate medication as per hospital policy eg. in the bubble, by a mortar and pestle, pharmhammer or medi-crusher (See Figures 13, 14, 15, p. 125, 126)

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 17

#### Comfort Factors When Administering an Oral Medication

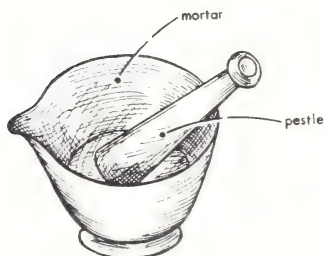
- b) Adapt Administration to the patient: (Cont'd)
- iv) check hospital policy if certain foods can be used to disguise the crushed drug or aid in swallowing of a whole medication eg. jello, apple sauce, jam.
  - v) give 1/2 glass of fluid for safe absorption of the drug. Use a straw if necessary to assist the patient to swallow adequate fluid.
  - vi) realize the size, color, or taste of the tablet as it dissolves in the patient's mouth may cause nausea or vomiting.
  - vii) be patient, different patients will require different time periods or methods when taking medication.
  - viii) consider the meaning of the medication to the patient eg. a punctual dose may indicate a caring nurse or give a patient a sense of time or framework for his activities.
- c) Position the Patient:
- i) assist the patient to sit up or elevate the bed to a 45° angle.
- d) Maintain a Pleasing Environment:
- i) use clean medication cups.
  - ii) use ice cold water or appropriate fluid.
  - iii) place a protective covering (ie. tissue or napkin) over a patient's clothing. (optional)

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 17

#### Comfort Factors When Administering an Oral Medication



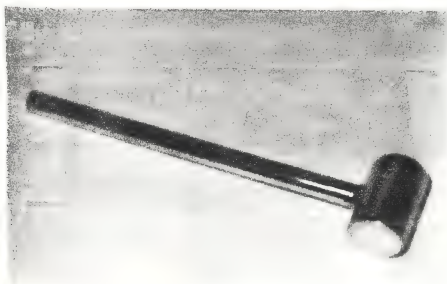
Mortar and Pestle

Figure 13

Mortar - a bowl in which drugs are ground into a powder form with a pestle.

Pestle - a device for pounding substances, such as drugs in a mortar.

Fitch, Grace E., and Dubing, Mary Jane., The MacMillan Dictionary for Practical and Vocational Nurses, New York, 1966, The MacMillan Co.



Pharmahammer

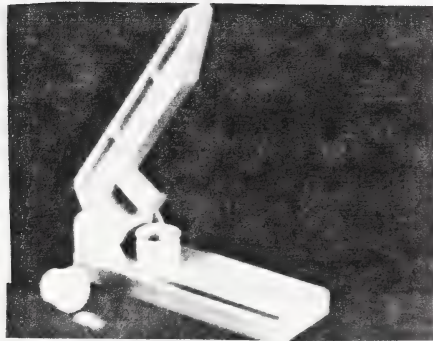
Figure 14

1752 St. James St.  
Winnipeg, Manitoba  
R3H 0L3

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 17

Comfort Factors When Administering an Oral Medication



Medi-Crusher  
Figure 15

Manrex Ltd.  
1752 St. James st.  
Winnipeg, Manitoba  
R3H 0L3

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 17

#### Comfort Factors When Administering an Oral Medication

#### Case Study 3

#### What Do You Say? (Mr. Parker)

It's time for Mr. Parker to take his medication. His door is open, so you knock once, stick your head in, and say what?

- A. "May I come in? It's time for your medication."
- B. "Here I am again. It's pill time."
- C. "Hi! Here comes the medicine man."

It's amazing how much better it is when we use a little courtesy when performing even routine tasks which the patient knows are necessary. Mr. Parker knows he has to take his pills, but how much nicer it is when we preface our remarks with "May I?" It brings a little dignity into the patient's life. We are not just issuing orders; we are developing a trusting relationship. Without asking permission, we are merely taking charge and thereby diminishing Mr. Parker's right to decision making. A is the only choice here. B and C are friendly, but are "I'm in charge" remarks. Try using "May I?" more in your work with the aging. "May I make your bed now?" is far superior to "I'm going to make your bed now," and "May I help you to the dining room" is better than "It's time for your dinner."

1. Create your own explanation:

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2. What comfort factor is being followed when administering Mr. Parker's pill?

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Staff, "What Do You Say," Geriatric Care, 16:11, (November, 1984)



Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 17

Comfort Factors When Administering an Oral Medication

Case Study 3

ANSWER SHEET

What Do You Say?

(Mr. Parker)

It's time for Mr. Parker to take his medication. His door is open, so you knock once, stick your head in, and say what?

- A. "May I come in? It's time for your medication."
- B. "Here I am again. It's pill time."
- C. "Hi! Here comes the medicine man."

It's amazing how much better it is when we use a little courtesy when performing even routine tasks which the patient knows are necessary. Mr. Parker knows he has to take his pills, but how much nicer it is when we preface our remarks with "May I?" It brings a little dignity into the patient's life. We are not just issuing orders; we are developing a trusting relationship. Without asking permission, we are merely taking charge and thereby diminishing Mr. Parker's right to decision making. A is the only choice here. B and C are friendly, but are "I'm in charge" remarks. Try using "May I?" more in your work with the aging. "May I make your bed now?" is far superior to "I'm going to make your bed now," and "May I help you to the dining room" is better than "It's time for your dinner."

1. Create your own explanation:

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2. What comfort factor is being followed when administering Mr. Parker's pill?  
an adequate explanation

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 17

Exercise 18

Comfort Factors When Administering an Oral Medication

Write if the following sentences are True or False:

1. An explanation is unnecessary when administering medications. \_\_\_\_\_
2. Crush enteric-coated pills. \_\_\_\_\_
3. Medications can be crushed by a medi-crusher or a mortar and pestle. \_\_\_\_\_
4. Check hospital policy if crushed medications can be disguised by food. \_\_\_\_\_
5. A napkin is always required for a patient when administering medications. \_\_\_\_\_
6. A tablet could dissolve in a patient's mouth and cause nausea. \_\_\_\_\_

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 17

Exercise 18

ANSWER SHEET

Comfort Factors When Administering an Oral Medication

Write if the following sentences are True or False:

1. An explanation is unnecessary when administering medications. False
2. Crush enteric-coated pills. False
3. Medications can be crushed by a medi-crusher or a mortar and pestle. True
4. Check hospital policy if crushed medications can be disguised by food. True
5. A napkin is always required for a patient when administering medications. False
6. A tablet could dissolve in a patient's mouth and cause nausea. True

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 19:** Identify safety factors after administering an oral medication using a controlled dosage/unit dose system:

- a) observe the effects of the medication
- b) utilize safety precautions
- c) replace supplies
- d) utilize medical aseptic technique

**Learner Activity:**

**Article:** Read Article 18  
"Safety Factors After Administering an Oral Medication"

**Tables:** Read Table III  
"Evaluation of the Effectiveness of Drug Action and Nursing Measures"

Read Table IV  
"Side Effects, Observations and Nursing Implications"

Read Table V  
"Adverse Reactions and the Elderly"

**Exercises:** Complete Exercise 19  
"Match the Intended Effect of Drug Action with the Evaluation of the Effectiveness of Drug Action"

Complete Exercise 20  
"Side Effect/Observation/Nursing Implication"

Complete Exercise 21  
"Adverse Reactions and the Elderly"

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 18

#### Safety Factors After Administering an Oral Medication

a) Observe the Effects of the Medication:

- i) know the purpose of the drug in order to observe the effect 30-45 minutes to 1 1/2 hrs. (See Table III, p. 134) after administration.
- ii) observe for side effects 30-45 minutes to 1 1/2 hrs (See Tables IV, V, p. 135-138) after administration.
- iii) observe for toxic, idiosyncratic and allergic reactions, plus symptoms of tolerance or dependence.

b) Utilize Safety Precautions:

- i) know safety precautions after giving a medication. (See Tables IV, V, p. 135-138)

c) Replace Supplies:

- i) notify the T.L. if a refill is needed to prevent future omission. (See Example 6, p. 79, Objective 14)
- ii) obtain the replacement blister pak card/unit package from the replacement basket and read the label 3 times while comparing to the doctor's order/medication profile.
- iii) return the medication profile binder to the nursing station to allow easy access.
- iv) store medications in the appropriate place eg. certain antibiotics may require refrigeration. Separate external and internal medications.
- v) place the file of blister-pak cards under the appropriate time on a wall hook or in a wall storage basket in the medication room. Read the time on the file against the time in the storage

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 18

#### Safety Factors After Administering an Oral Medication

- c) Replace Supplies: (Cont'd)
- v) area 3 times. Place the unit package in the correct patient drawer of the medication cart.
  - vi) store or lock the medication cart in the medication room.
  - vii) follow agency policy in the handling of the medication keys.
- d) Utilize Medical Aseptic Technique:
- i) discard used disposable medication cups after use.
  - ii) use disinfectant to clean the medication cart counter.
  - iii) wash and dry the device used to crush medications to prevent unpredictable results occurring when a residue of one drug mixes with another medication.

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Table III

Evaluation of the Effectiveness of Drug Action and Nursing Measures

Intended Effect	Evaluation of the Effectiveness of Drug Action and Nursing Measures
Analgesic	<u>Subjective patient response</u> <u>Decrease</u> in <u>muscular tension</u> and general relaxation <u>Increase</u> in <u>mobility</u> of affected part
Antacid	<u>Decrease</u> in <u>nausea</u> <u>Decrease</u> in <u>pain</u> and heartburn <u>Decrease</u> in or <u>absence</u> of <u>bloody stools</u> if previously present
Antihistamine	<u>Decrease</u> in or absence of signs and symptoms of <u>allergic response</u> , eg., hayfever, skin eruptions, asthma and wheezing
Antihypertensive	<u>Decrease</u> in <u>blood pressure</u> <u>Decrease</u> in <u>headache</u> , <u>dizziness</u> and other symptoms related to hypertension
Anti-infective	<u>Decrease</u> in <u>fever</u> , <u>fatigue</u> , signs and symptoms of infection
Antitussive and Expectorant	<u>Decrease</u> in occurrence of <u>cough</u> Productive cough More <u>restful sleep</u> <u>Decrease</u> in <u>rales</u>
Laxative (Cathartic)	<u>Regular elimination</u> of soft formed stool <u>Daily or routine check on bowel elimination</u> <u>Absence</u> of <u>abdominal distention</u> , <u>fecal impaction</u>
Sedative-Hypnotic	<u>Subjective patient response</u> <u>Observe patient frequently</u> to determine length and depth of <u>sleep</u> , restlessness

Asperheim, Mary K., and Eisenhauer, Laurel A., The Pharmacologic Basis of Patient Care, 4th Ed., Philadelphia, 1981, W.B. Saunders Co.



Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Table IV

Side Effects, Observations and Nursing Implications

Side Effect	Observe for:	Nursing Implications
<b>Allergic Reactions:</b> a. anaphylaxis	a. <u>Decreased blood pressure, local edema, prickling feeling in throat, edema of face and hands, cyanosis, choking cough and violent asthma, weak pulse.</u>	a. This is an <b><u>emergency</u></b> : <u>Call for help.</u> Follow Team Leaders' directions eg. O <sub>2</sub>
b. urticaria	b. Edematous pinkish elevations that itch and burn; may occur on any part of body.	b. Laryngeal edema and obstruction of trachea are possible. <b><u>Call for help.</u></b> Follow Team Leaders' directives. eg. O <sub>2</sub> . After appearance of urticaria <b><u>avoid vasodilation.</u></b> For patient's comfort, tepid or cool bath, cool environment, light bedclothes. Lotions and other measures may be indicated to reduce itching.



Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Table IV

Side Effects, Observations and Nursing Implications

Side Effect	Observe for:	Nursing Implications
<b>Cardiovascular Effects:</b>		
a. Arrhythmias	a. Any change in rate, <u>rhythm</u> , <u>volume</u> , or <u>character</u> of pulse	a. <u>Frequent vital signs</u> . Count pulse for one full minute to detect irregularities. Apical pulse and apical-radial pulse may be more accurate.
b. Hypotension	b. <u>Decrease in blood pressure</u> , dizziness, syncope, <u>shock</u> .	b. <u>Check blood pressure</u> before and after administration of drug with this potential effect. <u>Bedside rails</u> and <u>supervision</u> or <u>restriction of ambulation</u> may be needed.
c. Hypertension	c. <u>Elevated blood pressure</u> , nosebleed, emotional irritability, headache, visual disturbances, dizziness.	c. <u>Frequent vital signs</u> . <u>Reduce emotional and environmental tensions</u> as much as possible. Promote rest.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Table IV

### Side Effects, Observations and Nursing Implications

Side Effect	Observe for:	Nursing Implications
<b>Central Nervous System Effects:</b>		
a. Stimulation of C.N.S.	a. Anxiety, nervousness, insomnia	a. <u>Reduce environmental stimulation</u> as much as possible.
b. Depression of C.N.S.	b. Dizziness, vertigo, drowsiness, <u>decrease in pulse or respiration</u> , decreasing level of consciousness	b. <u>Bedside rails and supervision or restriction</u> of ambulation may be needed. <u>Check vital signs</u> , especially before giving additional doses of drugs producing this effect.
<b>Gastrointestinal effects:</b>		
a. Irritation of <u>gastric mucosa</u>	a. Nausea, vomiting, anorexia	a. <u>Give drug with or after meals or with milk or antacid</u> if ordered, unless absorption of the drug would be impaired. <u>Small frequent and attractive meals</u> may help in dealing with anorexia.
b. Constipation	b. Decrease in frequency of stools, hardness of stools	b. Careful, <u>systematic check</u> on patient's <u>bowel movements</u> . Insure adequate <u>bulk and fluid</u> in diet. Encourage <u>exercise</u> if possible. <u>Laxatives and enemas</u> as ordered by physician.

Asperheim, Mary K., and Eisehauer, Laurel A., The Pharmacologic Basis of Patient Care, 4th Ed., Philadelphia, 1981, W.B. Saunders Co.

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Table V

Adverse Reactions and the Elderly

ADVERSE REACTIONS	CORTICOSTEROID TOXICITY	DIGOXIN TOXICITY	DIURETIC TOXICITY	SLEEP MEDICATION TOXICITY
<ol style="list-style-type: none"> <li>1. The elderly experience <u>twice</u> as many adverse reactions as younger people.</li> <li>2. Signs and symptoms of adverse drug reactions <u>ie.</u> <ul style="list-style-type: none"> <li>- confusion</li> <li>- weakness</li> <li>- lethargy</li> </ul> are often attributed to "<u>senility</u>" or <u>disease</u>. </li> <li>3. If the signs of an adverse reaction are not identified the patient continues to receive the drug.</li> <li>4. If complications occur the patient may receive additional medication</li> </ol>	<p>Corticosteroids eg. Prednisone can cause:</p> <ol style="list-style-type: none"> <li>1. <u>Short-term effects</u> <ul style="list-style-type: none"> <li>- fluid retention</li> <li>- psychological reactions from mild euphoria to acute psychotic reactions</li> </ul> </li> <li>2. <u>Long-term effects</u> <ul style="list-style-type: none"> <li>- osteoporosis</li> </ul> </li> <li>3. <u>Observe for:</u> <ul style="list-style-type: none"> <li>- changes in appearance, mood and mobility</li> <li>- impaired healing</li> <li>- fluid/electrolyte disturbances</li> </ul> </li> </ol>	<p>With age:</p> <ol style="list-style-type: none"> <li>1) decrease in renal function</li> <li>1) decrease in rate of excretion</li> <li>1. These decreases cause an <u>increase in Digoxin concentration</u></li> <li>2. Nausea, vomiting, diarrhoea and cardiac arrhythmias can occur</li> <li>3. <u>Observe for</u> <ul style="list-style-type: none"> <li>- loss of appetite</li> <li>- confusion</li> <li>- depression</li> <li>- changes in orientation, mood</li> </ul> </li> </ol>	<p>With age:</p> <ol style="list-style-type: none"> <li>1) decrease in total body water</li> <li>1. diuretics may result in <u>fluid loss</u> and even dehydration</li> <li>2. <u>observe for</u> <ul style="list-style-type: none"> <li>- weakness due to a depletion of potassium (K<sup>+</sup>)</li> <li>- complication of diseases eg. diabetes due to an increase in blood uric glucose</li> </ul> </li> <li>2. <u>observe for</u> <ul style="list-style-type: none"> <li>- ability to walk after rising</li> <li>- gait</li> <li>- safety precautions eg. sideralis</li> </ul> </li> </ol>	<p>With age:</p> <ol style="list-style-type: none"> <li>1) decrease in metabolism</li> <li>1. sedatives can cause <u>excessive sedation</u> or residual <u>drowsiness</u></li> <li>2. <u>observe for</u> <ul style="list-style-type: none"> <li>- ability to walk after rising</li> <li>- gait</li> <li>- safety precautions eg. sideralis</li> </ul> </li> </ol>

Drugs, Pennsylvania, 1983, Springhouse Corporation  
 Nursing 86 Drug Handbook, Pennsylvania, 1986, Springhouse Corporation

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 18

Exercise 19

Intended/Evaluation

Match the intended effect of drug action in Column A with the evaluation of the effectiveness in Column B:

Column A

Column B

- |                              |                                    |
|------------------------------|------------------------------------|
| 1. _____ analgesic           | a) decrease in heartburn           |
| 2. _____ antacid             | b) absence of abdominal distention |
| 3. _____ antihistamine       | c) decrease in muscular tension    |
| 4. _____ antihypertensive    | d) decrease in allergic responses  |
| 5. _____ anti-infective      | e) decrease in fever               |
| 6. _____ antitussive         | f) decrease in dizziness           |
| 7. _____ laxative            | g) decrease in cough               |
| 8. _____ sedative - hypnotic | h) observe length of sleep         |

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 18

Exercise 19

ANSWER SHEET  
Intended/Evaluation

Match the intended effect of drug action in Column A with the evaluation of the effectiveness in Column B:

Column A

Column B

- |                                 |                                    |
|---------------------------------|------------------------------------|
| 1. <u>c</u> analgesic           | a) decrease in heartburn           |
| 2. <u>a</u> antacid             | b) absence of abdominal distention |
| 3. <u>d</u> antihistamine       | c) decrease in muscular tension    |
| 4. <u>f</u> antihypertensive    | d) decrease in allergic responses  |
| 5. <u>e</u> anti-infective      | e) decrease in fever               |
| 6. <u>g</u> antitussive         | f) decrease in dizziness           |
| 7. <u>b</u> laxative            | g) decrease in cough               |
| 8. <u>h</u> sedative - hypnotic | h) observe length of sleep         |

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 18

Exercise 20

Side Effect/Observation/Nursing Implication

Match the side effect in Column A with the observation and/or nursing implication in Column B:

<u>Column A</u>	<u>Column B</u>
1. _____ anaphylaxis	a) change in rate, rhythm of pulse
2. _____ arrhythmia	b) reduce environmental stimulation
3. _____ hypotension	c) increase bulk in diet
4. _____ stimulation of C.N.S.	d) decrease in level of consciousness
5. _____ irritation of gastric mucosa	e) check blood pressure
6. _____ constipation	f) anorexia, nausea, vomiting
7. _____ depression of C.N.S.	g) emergency. Call for help
8. _____ urticaria	h) edematous, pinkish elevations

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 18

Exercise 20

ANSWER SHEET

Side Effect/Observation/Nursing Implication

Match the side effect in Column A with the observation and/or nursing implication in Column B:

Column A

Column B

- |  |                                       |
|--|---------------------------------------|
| 1. <u>g</u> anaphylaxis                  | a) change in rate, rhythm of pulse    |
| 2. <u>a</u> arrhythmia                   | b) reduce environmental stimulation   |
| 3. <u>e</u> hypotension                  | c) increase bulk in diet              |
| 4. <u>b</u> stimulation of C.N.S.        | d) decrease in level of consciousness |
| 5. <u>f</u> irritation of gastric mucosa | e) check blood pressure               |
| 6. <u>c</u> constipation                 | f) anorexia, nausea, vomiting         |
| 7. <u>d</u> depression of C.N.S.         | g) emergency. Call for help           |
| 8. <u>h</u> urticaria                    | h) edematous, pinkish elevations      |

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 18

Exercise 21

Adverse Reactions and the Elderly

Write the answers to the following questions:

1. What are 2 observations of diuretic toxicity?

1. \_\_\_\_\_
2. \_\_\_\_\_

2. What are 3 observations of corticosteroid toxicity?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

3. What are 4 observations of digoxin toxicity?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

4. What are 3 observations of sleep medication toxicity?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 18

Exercise 21

ANSWER SHEET

Adverse Reactions and the Elderly

Write the answers to the following questions:

1. What are 2 observations of diuretic toxicity?
  1. weakness due to potassium depletion
  2. complications of diseases
  
2. What are 3 observations of corticosteroid toxicity?
  1. changes in appearance, mood, and mobility
  2. impaired healing
  3. fluid/electrolyte disturbances
  
3. What are 4 observations of digoxin toxicity?
  1. loss of appetite
  2. confusion
  3. depression
  4. changes in orientation, mood
  
4. What are 3 observations of sleep medication toxicity?
  1. ability to walk after rising
  2. changes in gait
  3. safety precautions

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**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 20:** Identify comfort measures, after administration, that facilitates the effectiveness of an oral medication using a controlled dosage/unit dose system.

- a) provide nursing care to promote effect and/or reduce the need for medication.

**Learner Activity:**

**Article:** Read Article 19  
"Comfort Measures Following Administration that Facilitates the Effectiveness of an Oral Medication."

**Case Study:**

Complete Case Study 4 "Mrs. Mary Yakobyzk"

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 19

#### Comfort Measures Following Administration that Facilitates the Effectiveness of an Oral Medication

Intended Effect	Measures to Promote Effect and/or Reduce the Need for the Drug
Analgesia	Assess through <u>observation</u> and ask the nature of the <u>pain</u> , the meaning of the pain and patient's reaction. Change patient's <u>position</u> to relieve pressure, lessen edema. Use <u>diversion</u> and other measures to produce general <u>relaxation</u> .
Antacid	Administer <u>antacid</u> promptly at the frequency ordered. Instruct patient to <u>avoid</u> obviously <u>irritating foods</u> ; bland diet if ordered, small frequent feedings. <u>Reduce anxiety</u> and emotional stress as much as possible. <u>Provide quiet</u> , restful environment.
Antihistamine	Prevent occurrence of allergic response by checking carefully for <u>drug</u> or <u>food allergies</u> . <u>Avoid vasodilation</u> from external heat or physical activity if urticaria is present. Implement <u>supportive measures</u> depending on the type and severity of allergic response as per T.L.'s instructions.
Antihypertensive	<u>Reduce factors promoting hypertension</u> . Provide <u>quiet</u> restful environment. Avoid use of <u>stimulants</u> , eg. caffeine, nicotine. Determine sources of <u>anxiety</u> and stress.

## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 19

#### Comfort Measures Following Administration that Facilitates the Effectiveness of an Oral Medication

Intended Effect	Measures to Promote Effect and/or Reduce the Need for the Drug
Anti-infective	Insure <u>good nutritional</u> intake, sufficient <u>rest</u> and adequate <u>fluid intake</u> . Use techniques and principles of medical and surgical <u>asepsis</u> when appropriate. Promote general cleanliness and hygiene.
Antitussive and Expectorant	<u>Change</u> patient's <u>position</u> frequently. Promote adequate <u>hydration</u> . Promote <u>deep breathing</u> and <u>coughing</u> . <u>Elevate head of bed</u> if possible. Offer <u>hard candy</u> to soothe pharynx.
Laxative (Cathartic)	Determine patient's <u>usual pattern</u> of elimination; frequency, usual time of day, previous use of cathartics. Insure sufficient <u>exercise</u> . <u>Offer toileting</u> frequently, especially after meals. Insure <u>privacy</u> during elimination.
Sedative-Hypnotic	Determine patient's <u>usual bedtime</u> ritual and sleeping pattern. Provide usual ritual as much as possible. Provide <u>quiet</u> and comfortable environment. Promote <u>physical comfort</u> : back and skin care, positioning, clean smooth bed. Determine any <u>basis</u> for <u>difficulty</u> in sleeping. Promote <u>physical activity</u> and wakefulness during the day.

Asperheim, Mary K., and Eisenhauer, Laurel., The Pharmacologic Basis of Patient Care, 4th Ed., Philadelphia, 1981, W.B. Saunders Co.

# Administer Oral Medication Using a Controlled Dosage/Unit Dose System

## Article 19

### Comfort Measures Following Administration that Facilitates the Effectiveness of an Oral Medication

#### Case Study 4

Mrs. Mary Yakobyzk  
# 246762  
RM 2110-1 Dr Rose

\_\_\_\_\_ EXTENDED CARE CENTRE

#### **MEDICATION PROFILE**

Date & Time Discontinued	MEDICATION & DOSAGE	Date Ordered	I.D.	SPECIAL CONSIDERATIONS
QD	Surfak 240 mg. p.o., q.d.	1/5/86		
	Multivite <del>ii</del> tabs.,	1/5/86		
	p.o., q.d.			
	Digoxin 0.125 mg.	1/5/86		
	p.o., q.d.			
BID	Furosemide 20 mg.	1/5/86		
	p.o., b.i.d.			
	HydroDiuril 25 mg.	1/5/86		
	p.o., b.i.d.			
TID	Slow K <del>iii</del> tabs.			
	p.o., t.i.d.			
QID				
HS	Chloral Hydrate	1/5/86		
	500 mg. p.o., h.s.			



Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 19

Comfort Measures Following Administration that Facilitates the Effectiveness of an Oral Medication

Case Study 4

Mrs. Yakobyzk

Mrs. Yakobyzk is a 70 year old lady with a diagnosis of Rheumatoid Arthritis and Congestive Heart Failure. Using this information and her **medication profile, on page 148** answer the following questions.

1. Which medication is an antihypertensive?

---

---

---

---

---

Upon entering her room you notice her bed light is shining blindingly in her face. Her roommate, Mrs. Snow has both the T.V. and radio on high volume. Mrs. Yakobyzk's three grandchildren 2, 3, and 4 years old are jumping on her bed while her daughter is smoking, gazing out of the window.

2. What changes would you make in her room? Why?

1. 

---

---

2. 

---

---

3. 

---

---

4. 

---

---



Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 19

Comfort Measures Following Administration that Facilitates the Effectiveness of an Oral Medication

Case Study 4

Mrs. Yakobyzk

(Cont'd)

3. Which medication is a laxative?

---

---

Mrs. Yakobyzk likes to sit in her rocking chair most of the time.

4. What could you do to reduce her need for a laxative?

1. 

---
2. 

---
3. 

---

5. Which medication is a sedative?

---

---

Mrs. Yakobyzk has received her sedative one hour ago. She is still "wide-eyed" and gazing at the ceiling. Mrs. Snow's radio is on and Mrs. Yakobyzk's bed curtain is open.

6. What could you do to promote the effect of the sedative?

1. 

---
2. 

---
3. 

---

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 19

Comfort Measures Following Administration that Facilitates the Effectiveness of an Oral Medication

Case Study 4

ANSWER SHEET  
Mrs. Yakobyzk

Mrs. Yakobyzk is a 70 year old lady with a diagnosis of Rheumatoid Arthritis and Congestive Heart Failure. Using this information and her **medication profile, on page 148** answer the following questions.

1. Which medication is an antihypertensive?

HydroDiuril

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Upon entering her room you notice her bed light is shining blindingly in her face. Her roommate, Mrs. Snow has both the T.V. and radio on high volume. Mrs. Yakobyzk's three grandchildren 2, 3, and 4 years old are jumping on her bed while her daughter is smoking, gazing out of the window.

2. What changes would you make in her room? Why?

1. Decrease the amount of light and adjust away from her face.

\_\_\_\_\_

2. Ask Mrs. Snow if she would mind turning the volume down.

\_\_\_\_\_

3. Ask her 3 grand children if they would like to see where their Grandma exercises.

\_\_\_\_\_

4. Offer to show her daughter where the smoking lounge is located.

\_\_\_\_\_

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 19

Comfort Measures Following Administration that Facilitates the Effectiveness of an Oral Medication

Case Study 4

ANSWER SHEET  
Mrs. Yakobyzk  
(Cont'd)

3. Which medication is a laxative?

Surfak

Mrs. Yakobyzk likes to sit in her rocking chair most of the time.

4. What could you do to reduce her need for a laxative?

1. Assist her to ambulate

2. Offer to assist her to the B.R. a.c./p.c. meals

3. Ensure privacy while in B.R.

5. Which medication is a sedative?

Chloral Hydrate

Mrs. Yakobyzk has received her sedative one hour ago. She is still "wide-eyed" and gazing at the ceiling. Mrs. Snow's radio is on and Mrs. Yakobyzk's bed curtain is open.

6. What could you do to promote the effect of the sedative?

1. Ask her if she is upset (over her family's visit) and stay to listen.

2. Give her a back rub and straighten her bed linen.

3. Ask Mrs. Snow to turn the volume down and draw Mrs. Yakobyzk's bed curtain.

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**Section A: Administer Oral Medication Using a Controlled Dosage/Unit Dose System**

**Objective 21:** Identify information to report **after administering** an oral medication using a controlled dosage/unit dose system:

- a) medication withheld
- b) observations
- c) medication error

**Learner Activity:**

**Review:** Review **Objective 19,** Section A

**Article:** Read **Article 20**  
"Information to Report after Administering an Oral Medication"

**Case Studies:**

- i) Complete **Case Study 5,** "Miss Peters"
- ii) Complete **Case Study 6,** "What Do You Say?"  
(Mrs. Allen)

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 20

#### Information to Report after Administering an Oral Medication

- a) Medication Withheld:
- i) report reason for patient's refusal to the T.L. eg. "nausea,"  
"It doesn't help."
  - ii) report reason for the medication being withheld to the T.L. ie. a patient's condition and/or factors imposed on the drug's administration. eg. Digoxin 0.125 mg. p.o., q.d. withheld as apical pulse below 60 beat/min.
- b) Observations:
- i) report desired effects to the T.L.
  - ii) report side effects/adverse reactions immediately to the T.L.
- c) Medication Error:
- i) report any deletions of the "5 Rights" to the T.L. immediately eg. giving the wrong drug, the wrong dosage to the wrong patient, or the right medication at the wrong time.
  - ii) immediate reporting allows for immediate emergency care. Remember "mistakes can happen".

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 20

#### Information to Report after Administering an Oral Medication

#### Case Study 5

#### "Miss Peters"

Miss Peters is a 65 year old lady with a diagnosis of Senile Dementia.

1. On giving her Largactil 50 mg. p.o., q.d. she yells, "I don't want that." What do you do/say?
2. Miss Peters suggests, *"Look dear, let's do both of us a favor. I'll say I took the pill and you say you gave it to me! I'm sick of pills."*

Think of the following two situations that could occur and the type of response you would give:

#### Situation A

Miss Peters attempts to hide the pill.

---

---

---

#### Situation B

Miss Peters refuses the pill.

---

---

---

3. What different observations would you report to the T.L. from these two situations?

#### Situation A

---

---

---

#### Situation B

---

---

---

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 20

#### Information to Report after Administering an Oral Medication

#### Case Study 5

#### ANSWER SHEET "Miss Peters"

Miss Peters is a 65 year old lady with a diagnosis of Senile Dementia.

1. On giving her Largactil 50 mg. p.o., q.d. she yells, "I don't want that."

What do you do/say?

*"Miss Peters, could you tell me why you don't want to take your pill?"*

2. Miss Peters suggests, *"Look dear, let's do both of us a favor. I'll say I took the pill and you say you gave it to me! I'm sick of pills."*

Think of the following two situations that could occur and the type of response you would give:

#### Situation A

Miss Peters attempts to hide the pill.

*"Miss Peters, please hand me your pill from under your pillowcase. I want you to put your pill into your mouth and drink this water."*

#### Situation B

Miss Peters refuses the pill.

*"Miss Peters, I know you are tired of taking your pills. Take your pill now and when the doctor comes tell him how you feel."*

3. What different observations would you report to the T.L. from these two situations?

#### Situation A

hiding the pill

#### Situation B

refusing and the reason



Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 20

Information to Report after Administering an Oral Medication

Case Study 6

What do you say?  
(Mrs. Allen)

Today when you take Mrs. Allen's medicine to her, she completely surprises you by slapping you across the face.

1. What would you say to Mrs. Allen?

---

---

---

---

2. What observations would you report to the Team Leader?

---

---

---

---

Staff, "What do you say?" Geriatric Care, 7:10, (October, 1975).

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 20

Information to Report after Administering an Oral Medication

Case Study 6

ANSWER SHEET  
What Do You Say?  
(Mrs. Allen)

Today when you take Mrs. Allen's medicine to her, she completely surprises you by slapping you across the face.

1. What would you say to Mrs. Allen?

*"Mrs. Allen, I do not understand why you hit me. I would like you to tell me why."*

2. What observations would you report to the Team Leader?

I would report Mrs. Allen's action (of slapping) and her reason.

Staff, "What do you say?" Geriatric Care, 7:10, (October, 1975).

**Section A:** Administer Oral Medication Using a Controlled Dosage/Unit Dose System

**Objective 22:** Identify information to record after administering an oral medication using a controlled dosage/unit dose system:

- a) record the administration of an oral medication according to agency policy
- b) record a medication withheld/refused/wasted or conditions imposed on administration of an oral medication according to agency policy
- c) record a medication error according to agency policy
- d) record schedule "G"/controlled drugs according to agency policy

**Learner Activity:**

**Review:** Review Objectives 19, 20, 21, Section A

**Article:** Read Article 21  
"Information to Record after Administering an Oral Medication"

**Exercise:**

Complete Exercise 22  
"Record Medications - Mr. Joe Smart"

- i) Use Examples: 12, p 162  
                  : 13, p 163  
                  : 17, p 167

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 21

#### Information to Record after Administering an Oral Medication

- a) Record the Administration of an Oral Medication According to Agency Policy:
- i) record the correct date, time, medication name, dosage and route in the medication record.  
Record time actually given.
  - ii) record your initials, signature and status on the medication record.
  - iii) record observations in the nurses notes/medication flow sheet/kardex (note the desired, adverse effect, problems in administering the drug).
  - iv) record nursing care given to facilitate/reduce the need for medication in the nurses notes.
  - v) record comfort and safety measures given in the nurse notes.  
(See Examples 12, 13, p 162, 163)
- b) Record a Medication Withheld/Refused/Wasted or Conditions Imposed on Administration of an Oral Medication According to Agency Policy:
- i) record the correct date, time medication name, dosage and route on the medication record.
  - ii) record your initials, signature, status on the medication record.
  - iii) record the reason the medication was not administered in the nurses notes/medication record/special medication flow sheet/blister pak card eg. withheld, refused. A code can also be used eg. 6 = pulse below 60/minute.  
(See Example 6, p. 79, Objective 14, Examples 12, 13, 14, 15, 16, p 162 - 166)

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Article 21

#### Information to Record after Administering an Oral Medication

- b) Record a Medication Withheld/Refused/Wasted or Conditions Imposed on Administration of an Oral Medication According to Agency Policy: (Cont'd)
- iv) record a wasted medication as per agency policy. A witness may be required to view actual disposal and record the same. (RN/RNA) - according to agency policy.
- c) Record a Medication Error According to Agency Policy:
- i) record the time the error happened or was discovered.
- ii) record the reporting of the error to the T.L.
- iii) record the observations, action taken and contributing factor that caused the incident.
- iv) record that an incident report was completed and/or write an explanation in the nurses notes. (See Example 17, p. 167)
- d) Record Schedule "G" Drugs/Controlled Drugs According to Agency Policy:
- i) count and record at the end of each 8 hr shift the controlled drugs by two nurses, the one coming on duty and the one leaving, for legal protection. RN/RNA according to agency policy. (See Example 18, p. 168)
- ii) check that the number distributed plus the number remaining equals the amount assigned to the unit.
- iii) record a wasted dose as per agency policy. A witness RN/RNA may be required to view actual disposal and record the same.
- iv) use red ink if policy dictates to indicate shift count.
- v) record each administration of a medication as per 'Record the administration of an oral medication according to agency policy.'

# Administer Oral Medication Using a Controlled Dosage/Unit Dose System

## Article 21

### Information to Record after Administering an Oral Medication

Smith, Bill  
I. D. #2467  
Room 210-1  
Dr. Rose

### Example 12

#### MEDICATION RECORD

DATE 01/06/86											
MEDICATIONS		TIME	SIG.	TIME	SIG.	TIME	SIG.	TIME	SIG.	TIME	SIG.
Multivite		1000	SW								
1 tablet		1800	JS								
p.o. b.i.d.											
Digoxin		1000	SW								
0.125 mg.			withheld								
p.o.q.d.		Ap	48								
Surmontil		1000	SW								
25 mg. p.o.		1400	SW								
t.i.d.			refused								
		1800	JS								
Sig.	Int.	Sig.	Int.	Sig.	Int.	Sig.	Int.	Sig.	Int.	Sig.	Int.
Sue	SW										
wong	RNA										
Joe	JS										
Smith	RNA										

\* Note Digoxin withheld and apical pulse

\* Note Surmontil refused at 1400 hours

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### Administer Oral Medication Using a Controlled Dosage/Unit Dose System

## Article 21

### Information to Record after Administering an Oral Medication

Smith, Bill  
I. D. #2467  
Room 210-1  
Dr. Rose

### Example 13

### NURSING OBSERVATIONS AND PROGRESS NOTES

[illegible]

## NURSING OBSERVATIONS AND PROGRESS NOTES

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# Administer Oral Medication Using a Controlled Dosage/Unit Dose System

## Article 21

### Information to Record after Administering an Oral Medication

#### Example 14

#### MEDICATION RECORD

ALLERGIC TO:  
A.S.A

DATE ORDERED	DRUG, DOSE & ROUTE	DATE DC	SCHEDULE			DATE			DATE			DATE		
						11.7	7.3	3.11	11.7	7.3	3.11	11.7	7.3	3.11
01/06/86	Multivite 1 tab. p.o.b.i.d.		10	18			SW	JS						
01/06/86	Digoxin 0.125 mg. p.o. q.d.		10				with- held Ap 48 SW							
01/06/86	Surmontil 25 mg. p.o. t.i.d.		10	14	18		refu- sed 1400 SW	JS						
DATE	01/06/86													
11.7														
7.3	S. Wong RNA SW													
3.11	Joe Smith RNA JS													

NAME PLATE		
Smith, Bill		
I.D. #2467		
Room 210-1		
Dr. Rose		

PERMANENT CHART COPY

\* Note RNA signs for complete shift

\* Note allergy section, and date discontinued Date DC

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur Inc.

### Administer Oral Medication Using a Controlled Dosage/Unit Dose System

## Article 21

### Information to Record after Administering an Oral Medication

Smith, Bill  
I. D. #2467  
Room 210-1  
Dr. Rose

### Example 15

### MEDICATION FLOW CHART

**MEDICATION NOT GIVEN**

(STATE REASON)

DATE	TIME	MEDICATION AND DOSAGE	ROUTE	REASON AND RESULT	INT.
01/06/86	1400	Surmontil 25 mg.	p.o.	Refused. States "It makes my hands numb"	
				Mrs. Jones, T.L. notified.	S.W.
Signature	Int.	Signature	Int.		
Sue Wong RNA	SW				

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# Administer Oral Medication Using a Controlled Dosage/Unit Dose System

## Article 21 Example 16

INITIALS	NAME	SIGNATURE	INITIALS	NAME	SIGNATURE	INITIALS	NAME	SIGNATURE
S. W.	S. Wong RMA							
J. S.	Joe Smith RMA							

MEDICATION	MEDICATION AND TREATMENT RECORD																																
	HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Digoxin 0.125 mg. p.o. q.d.	10 SW																																
Summontil 25 mg. p.o. t.i.d.	10 SW																																
	14 SW																																
	18 JS																																
Multiple tablet p.o. b.i.d.	10 SW																																
	18 JS																																

DIAGNOSIS - CONDITION OF PATIENT	C.V.A.	ALLERGIES	A.S.A	BIRTH DATE		SEX	WEIGHT	ROOM	BED
				MO.	DAY				
MONTH YEAR									
01/06/86				05	1905	M	70 Kg.	210	1

Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 21

Information to Record after Administering an Oral Medication

Example 17

Unusual Incident Report

Smith Billll  
I.D. #2467  
Room 210-1  
Dr. Rose

Persons Involved

A visitor	x
A patient	
An employee	

Date of Incident 02/06/86 Time 1000  
Patient Census 30 Number of staff present on ward 4  
Patient's Diagnosis Rheumatoid Arthritis

Patients condition before incident: Normal x Confused    Sedated    Other     
Details of condition ambulatory orientated elderly gentleman.

Side rails present yes    no N/A up    down    Patients bed high    low N/A  
Description of what happened; what the causes were

I gave A.S.A 325 mg. p.o. to Mr. Bill Smith instead of to his wife, Mrs. Betty Smith. Mr. Smith is allergic to A.S.A. He began vomiting at 1045, a large amount of whitish emesis. At that time he asked "What was that pill you gave me?" I notified Mrs. Jones the T.L., I checked the medication profiles and records of both patients and discovered my error.

Action taken Mrs. Jones directed me to stay with Mr. Smith and take his V/S - 37-100-28-190/80

Signature Sue Wong R.N.A.

Doctor notified yes X no    @ 1100.

Doctor examination Dr. Rose visited. Stat blood work and urinalysis completed. On bedrest.

Signature Mrs. P. Jones R.N.A.

Supervisor notified yes X no    @ 1105

Supervisors comments To have constant nursing care for 24 hours.

Signature Miss T. Bowan B.N.

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 21

Information to Record after Administering an Oral Medication

Exercise 22

Smart, Joe  
I. D. #007  
Room 208-2  
Dr. Mark

**Record medications - Mr. Joe Smart:**

Mr. Joe Smart receives the following medications:

1. Colace 100 mg. p.o. q.d.
2. Tranxene 15 mg. p.o. b.i.d.
3. Inderal 10 mg. p.o. q.i.d.
4. Dilantin 100 mg. p.o. t.i.d.
5. Dalmane 15 mg. p.o. h.s.

- A. Record the medications you have given on the provided medication record. Your shift is 0700 - 1500 hrs . Routine times are:

q.d.	0800 hrs
b.i.d.	0800, 1700 hrs.
t.i.d.	0800, 1200, 1700 hrs.
q.i.d.	0800, 1200, 1700, 2100 hrs.
h.s.	2200 hrs.

- B. Mr. Joe Smart refuses the Colace. Record on the provided medication record and nursing notes.
- C. You gave Mr. Joe Smart the 1700 hr. dose of Dilantin. Record on the provided incident report and nursing notes.
- D. Use Examples 12, 13, 17 as a guideline.

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### Administer Oral Medication Using a Controlled Dosage/Unit Dose System

## Article 21

### Exercise 22

Smart, Joe  
I. D. #007  
Room 208-2  
Dr. Mark

### MEDICATION RECORD

[illegible]

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Article 21

Exercise 22

Smart, Joe  
I. D. #007  
Room 208-2  
Dr. Mark

Unusual Incident Report

Persons Involved      A visitor  
                            A patient  
                            An employee

Date of Incident \_\_\_\_\_ Time \_\_\_\_\_  
Patient Census \_\_\_\_\_ Number of staff present on ward \_\_\_\_\_  
Patient's Diagnosis \_\_\_\_\_

Patient's condition before incident: Normal \_\_\_\_\_ Confused \_\_\_\_\_  
Sedated \_\_\_\_\_ Other \_\_\_\_\_ Details of Condition \_\_\_\_\_

Side rails present yes \_\_\_\_\_ no \_\_\_\_\_ up \_\_\_\_\_ down \_\_\_\_\_ Patients bed high \_\_\_\_\_  
low \_\_\_\_\_ Description of what happened; what the causes were \_\_\_\_\_

Action taken \_\_\_\_\_

Signature \_\_\_\_\_

Dotor notified yes \_\_\_\_\_ no \_\_\_\_\_

Doctor examination \_\_\_\_\_

Signature \_\_\_\_\_

Supervisor notified yes \_\_\_\_\_ no \_\_\_\_\_

Supervisors comments \_\_\_\_\_

Signature \_\_\_\_\_

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**Section A:** Administer Oral Medication From A Controlled Dosage/Unit Dose System

**Objective 23:** Demonstrate the skill of preparing and administering an oral medication using a controlled dosage/unit dose system.

**Learner Activity:**

**Task Analysis:** Read and Practice Task Analysis

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### SECTION A TASK ANALYSIS

#### Wash Hands

#### Gather Data

##### .01 Research Patient Information from Medication Profile, Kardex, Chart

- .001 identify age, medication teaching given, diagnosis, allergies, restricted medication information, history of cross sensitivity, tolerance, dependence
- .002 note time nursing care given to reduce the need for medication
- .003 note purpose of the medication in relation to baseline data

##### .02 Check Policy Manual

- .001 note medication administration restrictions for RNA's
- .002 note automatic stop dates for medications
- .003 note routine times for medication administration

##### .03 Research Medication

- .001 identify generic, trade names, dosage range, routes available, desired effect, adverse reaction, drug interactions and nursing considerations

#### Check With Team Leader for Clarification (optional)

#### Obtain Medication Keys (optional)

#### Unlock Medication Room (optional)

#### Obtain Medication Cart

- .01 locate cart in medication room

#### Maintain a Safe Clean Environment

- .01 clean medication cart's counter with disinfectant (optional)
- .02 tidy medication cart's counter

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### SECTION A TASK ANALYSIS

#### Obtain Other Equipment and Supplies

- .01 collect paper medication cups
- .02 collect filled water jug from refrigerator
- .03 collect mortar, pestle, pharmahammer or medi-crusher (optional)
- .04 collect tissues, straws, paper bag (optional)
- .05 collect other supplies required (ie. food as per agency policy)
- .06 place equipment in/on appropriate area of cart

#### Attach Medication Profile Binder

- .01 place medication profile binder on cart's stand

#### Obtain Correct file (Controlled Dosage System)

- .01 check pharmafile wall storage basket
- .02 check time labelled above pharmafile
- .03 check time labelled on file
- .04 compare that the two times coincide
- .05 remove correct file from wall storage basket

#### Attach File to Cart (Controlled Dosage System)

- .01 find metal clip on top of cart
- .02 slip back the wire bar of the file under the metal clip

#### Move Medication Cart to Appropriate Area

- .01 note dispensing method on file (ie. room #) on Controlled Dosage System
- .02 keep the cart in eye contact at all times

#### Locate Patient Medication Profile

- .01 open medication profile binder
- .02 find the correct patient medication profile
- .03 read patient's name identification and room number

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### **SECTION A TASK ANALYSIS**

#### Locate Patient Blister Pak Card/Unit Dose Drawer

- .01 read label on blister pak card/unit dose drawer
- .02 note patient's name, identification and room number

#### Compare Blister Pak Card/Unit Dose Drawer

- .01 note if patient's name, identification and room number coincide

#### Move the Medication Cart to the Right Patient

##### Patient Unavailable

- .01 use the alert system (**optional, Controlled Dosage System**)
  - .001 note where the clip is attached to the blister pak
  - .002 lift the tab on the clip with your thumb
  - .003 move the blister pak card to the side
- .02 identify patient when available

#### Identify Patient

- .01 identify yourself
- .02 ask patient his name
- .03 compare patient to photo in profile (optional)
- .04 read the patient's I.D. band (note spelling, I.D. #)
- .05 compare information to the medication profile

#### Check for Allergies

- .01 check patient's arms for an allergy armband
- .02 ask patient if he has any allergies
- .03 check patient's arm or neck for a medic alert band

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### SECTION A TASK ANALYSIS

#### Explain Procedure

- .01 face patient
- .02 use a firm, positive approach when explaining
- .03 check if the patient requires devices to facilitate communication eg. hearing aid

#### Reinforce Teaching of the Medication

- .01 use terms the patient will understand
- .02 ask the patient if he is familiar with taking the medication

#### Determine Patient Response

- .01 ask if he has any questions
- .02 ask if he understands
- .03 ask if he has any worries/fears
- .04 listen to patient comments

#### Re-explain

- .05 answer questions (optional)
- .06 reinforce teaching
- .07 check if the patient understands
- .08 report to the T.L. if patient confused or extra teaching required

#### Clarify Patient Questions

- .05 recheck the medication profile against the blister pak card/unit dose package
- .06 note the "5 Rights"
- .07 recheck the medication profile against the doctor's order
- .08 note the "5 Rights"
- .09 report to T.L. patient comments
- .10 report to T.L. any inconsistencies or doubts

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### SECTION A TASK ANALYSIS

#### Position Patient

- .01 ensure that the patient has his head elevated
- .02 place protective covering over the patient's clothing (optional)

#### Obtain Unit Dose Package (Unit Dose System)

- .01 read label on unit dose drawer noting patient's name, identification and room number
- .02 obtain unit dose package from patient's drawer

#### Read Label on Blister Pak Card/Unit Dose Package (First Time)

- .01 compare label to the medication profile/doctor's order
- .02 note if it is the **Right Drug**- check generic/trade names, check spelling
- .03 note if it is the **Right Dose** - check dosage points
- .04 note if it is the **Right Time** - check if it is self-terminating, check routine hospital times
- .05 note if it is the **Right Route** - check any observations required by RN for route choice
- .06 note if it is the **Right Patient** - check patient name identification and room number

#### Read Blister Pak Card/Unit Dose Package

- .01 note special considerations
- .02 note expiratory date
- .03 note notations
- .04 note condition of card/package

#### Locate Correct Bubble on Blister Pak Card (Controlled Dosage System)

- .01 note special considerations
- .02 note date first administered (optional)
- .03 note highest number bubble filled
- .04 work systematically toward #1 bubble
- .05 note even or odd dates
- .06 note condition of bubble

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### SECTION A TASK ANALYSIS

Place Medication Cup Under Correct Bubble on Blister Pak Card/  
Place Medication Cup Under Correct Unit Dose Package

- .01 hold medication cup on the outside

Holding Medication Cup Under Bubble, Read Label on Blister Pak Card/  
Holding Medication Cup Under Unit Dose Package, Read Label on Unit Dose Package  
(Second Time)

- .01 compare label to the medication profile/doctor's order
- .02 note if it is the **Right Drug** - check generic/trade names, check spelling
- .03 note if it is the **Right Dose** - check dosage points
- .04 note if it is the **Right Time** - check if it is self-terminating, check routine hospital times
- .05 note if it is the **Right Route** - check any observations required by RN for route choice
- .06 note if it is the **Right Patient** - check patient's name, identification and room number

Push Bubble on Blister Pak Card      OR      Pour Unit Dose Package

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>.01 push top of bubble downwards</li><li>.02 continue pushing bubble until foil backing breaks</li></ul> | <ul style="list-style-type: none"><li>.01 pour contents of unit dose package into medication cup</li></ul> |
|--|--|

Check to See if the Medication has Fallen into the Medication Cup

Read Label on Blister Pak Card (Third Time) Before You Flip the Blister Pak Card Away From You/or Discard the Empty Unit Dose Package

- .01 compare label to the medication profile/doctor's order
- .02 note if it is the **Right Drug** - check generic/trade names, check spelling
- .03 note if it is the **Right Dose** - check dosage points
- .04 note if it is the **Right Time** - check if it is self-terminating, check routine hospital times
- .05 note if it is the **Right Route** - check any observations required by RN for route choice
- .06 note if it is the **Right Patient** - check patient name, identification and room number

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### SECTION A TASK ANALYSIS

#### 'Use Alert System' (Optional, Controlled Dosage System)

- .01 check if it is the last bubble
  - or
  - check if a refill is required
  - or
  - check if a liquid medication/treatment is required (orange card or pharmacard #2)
- .001 note where clip is attached to blister pak
- .002 lift tab on the blister pak card with your thumb
- .003 move blister pak card to the side

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### SECTION A TASK ANALYSIS

#### Crush Medication Following Agency Policy (optional)

<u>Obtain Pharmahammer</u>	<u>Obtain Mortar and Pestle</u>	<u>Obtain Medi-Crusher</u>
.01 fold the medication cup containing the medication together	.01 place medication cup #1 containing the medication in the mortar	.01 place the medication cup containing the medication under the crusher
.02 strike the medication cup with the pharmahammer	.02 cover the rounded end of pestle with a second paper medication cup #2	.02 cover the crusher with a second paper medication cup
.03 repeat until the medication is crushed	.03 hold the pestle and use a grinding motion on the medication in the medication cup #1	.03 push down directly on handle of medi-crusher
.04 unfold medication cup	.04 repeat motion until the medication is crushed	.04 repeat motion until the medication is crushed
.05 pour medication into a second paper medication cup	.05 remove the covered pestle from the mortar	.05 remove the second medication cup from the crusher
	.06 check for adhered medication on medication cup #2	
	.07 use the edge of the medication cup #1 to collect the adhered medication	
	.08 discard the medication cup #2	
	.09 discard any medication not in the medication cup #1	

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### SECTION A TASK ANALYSIS

#### Administer the Oral Medication

- .01 adapt administration according to agency policy (ie. with food)
- .02 pour 1/2 glass of ice water (or appropriate fluid)
- .03 place fluid within reach

#### Patient takes his own medication

- .04 ask patient to hold the medication cup in one hand
- .05 ask patient to hold glass in other hand
- .06 instruct patient to place the medication cup to his lips and tilt the medication into his mouth
- .07 instruct patient to put medication far back on his tongue (optional)
- .08 instruct patient to drink the fluid and swallow the medication (optional)

#### Assist patient to take his medication

- .04 instruct patient to open his mouth
- .05 place the medication cup to the patient lips with one hand
- .06 support head and neck of patient (optional)
- .07 tilt the medication cup into the patient's mouth, releasing the medication
- .08 give patient fluid
- .09 instruct patient to swallow (optional)

#### Unable to Administer medication

- .01 notify T.L.
- .02 follow agency policy regarding disposal routine (witness)

#### Observe Patient Closely

- .01 remain with the patient
- .02 observe patient swallowing medication
- .03 look under patient's tongue, in his mouth, hands, or in the bed linen (optional)
- .04 observe patient reaction - desired effect, side effects, idiosyncratic and allergic reactions, tolerance, dependence
- .05 note for any problems administering the medication

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### **SECTION A TASK ANALYSIS**

#### Perform Safety Precautions

- .01 place siderails up (optional)
- .02 place call bell near hand
- .03 position patient in semifowlers/head of bed elevated (optional)
- .04 apply safety restraints (optional)

#### Perform Comfort Measures

- .01 perform required nursing care to facilitate the action of the medication
- .02 instruct patient you will return in 30 - 45 minutes

#### Maintain Aseptic Technique

- .01 wash hands
- .02 discard disposable medication cup in paper bag
- .03 discard wasted medication as per agency policy

#### Report and Record the Administration of an Oral Medication According to Agency Policy

- .01 note the correct date, time, and medication on the medication record
- .02 note the medication name, dosage, and route on the medication record
- .03 record actual time medication administered
- .04 record initials, signature and status on the medication record
- .05 report and record observations in nursing notes/medication flow sheet/kardex (note the desired, adverse effect, problems administering the medication, patient reaction)
- .06 record nursing care given to facilitate/reduce the need for medication
- .07 record safety precautions taken
- .08 record comfort measures given

#### Report and Record a Medication Error According to Agency Policy

- .01 report to T.L. and record on an unusual incident report/nursing notes, kardex
- .02 report/record the time the incident happened or was discovered
- .03 record reporting of medication error

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### **SECTION A TASK ANALYSIS**

#### Report and Record a Medication Error According to Agency Policy

- .04 report/record observations
- .05 report/record action taken
- .06 report/record contributing factor that caused incident

#### Report and Record a Medication Withheld/Wasted According to Agency Policy

- .01 report to T.L. and record in nursing notes/medication record/special medication sheet/kardex
- .02 note the correct date, time, and medication on the medication record
- .03 note medication name, dosage, route on the medication record
- .04 record initials, signature and status on the medication record
- .05 report/record the reason the medication was not administered
- .06 record on blister pak with notation (optional)
- .07 record a wasted dose with another nurse as a witness

#### Record Schedule "G" Drugs/Controlled Drugs According to Agency Policy

- .01 count and record at the end of each 8 hour shift the controlled drugs by two nurses, RN/RNA the one coming on duty and the one leaving. Use red ink if required
- .02 check that the number distributed plus the number remaining equals the amount assigned to the unit
- .03 record each administration of a medication as per Report and Record the Administration of an Oral Medication
- .04 record a wasted dose with another nurse RN/RNA as a witness

#### Replace Supplies

- .01 place medication profile binder in appropriate area
- .02 place medication cart in medication room

#### Remove File (Controlled Dosage System)

- .01 find metal clip on top of cart
- .02 slip back wire bar of the file under the metal clip
- .03 remove file

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### **SECTION A TASK ANALYSIS**

#### Return File (Controlled Dosage System)

- .01 read label on the file for administration time
- .02 read heading over the wall storage basket for administration time
- .03 check that the two times coincide
- .04 return file to correct wall storage basket

#### Maintain Aseptic Technique

- .01 clean medication counter with disinfectant
- .02 dispose of any used supplies
- .03 rinse and dry equipment used for crushing medications (optional)

#### Wash Hands

#### Restock Medication Cart

- .01 check and replenish any supplies, (paper medication cups, tissues, paper bag)
- .02 replace equipment used for crushing medications
- .03 report to T.L. if more unit dose packages/blister pak cards are required.

#### Return Waterjug

- .01 empty waterjug
- .02 refill waterjug
- .03 place in refrigerator

#### Wash Hands

#### Lock Medication Cart (Optional)

- .01 lock medication cart (optional)
- .02 place medication cart in medication room
- .03 lock medication room

#### Return Medication Keys to the T.L.

#### Wash Hands

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**Administer Oral Medication Using a Controlled Dosage/Unit Dose System**

**Section A**  
**Mini-Quiz**

**Give abbreviations for the following:**

1. gram \_\_\_\_\_
2. millilitre \_\_\_\_\_

**Write the meaning of the following abbreviations:**

3. c.c. \_\_\_\_\_
4. b.i.d. \_\_\_\_\_
5. q.d. \_\_\_\_\_

**Circle the correct answer by letter:**

6. Which of the following is the best definition of **Systemic Action?**
  - a) an organized approach to nursing care
  - b) a general effect which affects the whole body
  - c) the passage of substances through the wall of the digestive tract
  - d) drug action other than the main effect of drug administered
7. What is another term for the trade name of a medication?
  - a) chemical
  - b) hospital
  - c) brand
  - d) pharmacy
8. What legal aspect does an RNA have to consider prior to preparing medications?
  - a) RN's permission
  - b) malpractice policy
  - c) patient permission
  - d) agency policy

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### Administer Oral Medication Using a Controlled Dosage/Unit Dose System

## Section A

### Mini-Quiz

9. Which **Drug Classification's** main function is to regulate urination?
- a) diuretic
  - b) antihypertensive
  - c) vasodilator
  - d) laxative
10. Which **Drug Classification's** main function is to reduce BP?
- a) corticosteroid
  - b) antimicrobial
  - c) antihypertensive
  - d) expectorant
11. Which factors influence **Drug Action?**
- a) sex
  - b) age
  - c) diet
  - d) religion
- 1) c, d                      3) a, d  
2) a, b                      4) b, d
12. What is a component of a unit dose system which **differs** from a controlled dosage method?
- a) medication profile
  - b) medicine cup
  - c) individually packaged doses
  - d) doctor's order

**Administer Oral Medications Using a Controlled Dosage/Unit Dose System**

**Section A**  
**Mini-Quiz**

13. Write two advantages of a controlled dosage/unit dose system:

1. \_\_\_\_\_
2. \_\_\_\_\_

14. Write two disadvantages of a controlled dosage/unit dose system:

1. \_\_\_\_\_
2. \_\_\_\_\_

**Circle the correct answer by letter:**

15. Identify what is missing from the following doctor's order:

"Valium 5 mg. p.o."

- a) time
- b) dose
- c) route
- d) name

**Fill in the blanks:**

16. The RNA must always read a label on the blister pak card/unit dose package \_\_\_\_\_ times.

17. List the "5 Rights":

- i) \_\_\_\_\_
- ii) \_\_\_\_\_
- iii) \_\_\_\_\_
- iv) \_\_\_\_\_
- v) \_\_\_\_\_

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**Administer Oral Medication Using a Controlled Dosage/Unit Dose System**

**Section A**

**Mini-Quiz**

**Indicate True or False:**

18. You can give a medication poured by another nurse. \_\_\_\_\_
19. You check a patient's identification by asking "Who is Mr. Smith?" \_\_\_\_\_
20. Medications can be crushed if they are enteric-coated. \_\_\_\_\_

**Circle the correct answer by letter:**

21. When should you be able to observe an oral medication's effect?

- a) 5 mins.
- b) 20 mins.
- c) 45 mins.
- d) 3 hrs.

22. How would you reduce a patient's need for a laxative?

- a) increase fluids
- b) promote rest
- c) increase activity
- d) decrease roughage

- 1) a, b
- 2) c, d

- 3) a, c
- 4) b, d

23. Which form do you complete for a medication error?

- a) doctor's order
- b) incident report
- c) admission note
- d) medication profile

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Section A

#### Mini-Quiz

**Write your answer to the following question:**

24. You take Mr. Smith's apical pulse. It is 48 beats/min. He is to receive Digoxin. What do you do?

---

---

---

**Fill in the blanks:**

25. Write 2 resources you can use to research medications:

- i) \_\_\_\_\_  
ii) \_\_\_\_\_

26. Where should you place your research?

---

27. What information would you obtain from the resources used before you administered an oral medication?

- i) \_\_\_\_\_  
ii) \_\_\_\_\_  
iii) \_\_\_\_\_  
iv) \_\_\_\_\_  
v) \_\_\_\_\_  
vi) \_\_\_\_\_  
vii) \_\_\_\_\_

28. What would you research in the patient's history before you administered an oral medication?

- i) \_\_\_\_\_  
ii) \_\_\_\_\_  
iii) \_\_\_\_\_

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**Administer Oral Medication Using a Controlled Dosage/Unit Dose System**

**Section A**  
**Mini-Quiz**

**Indicate True or False:**

29. Timed released capsules can be crushed. \_\_\_\_\_
30. Timed released drugs allow smaller quantities of drugs to be available for absorption over a relatively long period of time. \_\_\_\_\_
31. Drug effect is due to bonding of a drug to a receptor. \_\_\_\_\_
32. Drug effect is always systemic. \_\_\_\_\_
33. Drugs must be in solution to cross the membranes of cells. \_\_\_\_\_

**Circle the correct answer by letter:**

34. Where are most drugs absorbed?
- a) small intestine
  - b) stomach
  - c) large intestine
  - d) colon
35. Which organs rapidly receive medications?
- a) muscle, liver
  - b) brain, skin
  - c) heart, kidney
  - d) fat, liver
36. Through which route are drugs mainly excreted?
- a) kidneys
  - b) liver
  - c) perspiration
  - d) saliva

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## Administer Oral Medication Using a Controlled Dosage/Unit Dose System

### Section A Mini-Quiz

Circle the correct answer by letter.

37. Which factor speeds the absorption of medications?

- a) empty small intestine
- b) full stomach
- c) full small intestine
- d) empty stomach

Fill in the blanks:

38. \_\_\_\_\_ is a term used to describe an action where a drug may accumulate in the body before previously administered doses have been metabolized or excreted.

39. When a drug is taken over a long period \_\_\_\_\_ to its action may develop.

40. The inability of a person to control the ingestion of drugs is called \_\_\_\_\_.

41. In giving drugs to the elderly, drug dosages are \_\_\_\_\_ and sometimes given at \_\_\_\_\_ intervals.

42. The \_\_\_\_\_ is the therapeutically intended response.

43. Adverse reactions in the elderly are sometimes attributed to \_\_\_\_\_ or \_\_\_\_\_.

Indicate if True or False:

44. Drug interactions are always dangerous. \_\_\_\_\_

45. Drug interactions can be avoided by changing the dose or time of one or more medications. \_\_\_\_\_

Your Score \_\_\_\_\_

Successful Score: 36/45 (80%)  
(9 wrong allowed)

\*Note: Review each incorrect answer by corresponding objective

\*\*Note: Review all of Section A if you had more than 9 answers incorrect.

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Section A

Mini-Quiz

Answer Sheet

<u>Answer</u>	<u>Objective</u>
1. (g.) Gm.	1
2. ml.	1
3. cubic centimetre	1
4. twice a day	1
5. every day	1
6. b	2
7. c	2
8. d	7
9. a	8
10. c	8
11. 2	5
12. c	11
13. review objective	13
14. review objective	13
15. a	15
16. 3	16
17. i) Right Drug	16
ii) Right Dose	
iii) Right Time	
iv) Right Route	
v) Right Patient	
18. false	17
19. false	17
20. false	18
21. c	19
22. 3	20
23. b	22
24. withhold the medication - report to T.L.	17

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Section A

Mini-Quiz

Answer Sheet

<u>Answer</u>	<u>Objective</u>
25. i) drug handbook ii) CPS (manufacturers information)	9
26. on index cards in your pocket	10
27. i) generic name ii) trade name iii) desired action iv) adverse effects v) therapeutic dosage vi) contraindications vii) drug interactions	9
28. i) allergies - cross sensitivity ii) tolerance iii) dependence	16
29. false	18
30. true	3
31. true	3
32. false	3
33. true	3
34. a	3
35. c	3
36. a	3
37. d	3

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Administer Oral Medication Using a Controlled Dosage/Unit Dose System

Section A

Mini-Quiz

Answer Sheet

<u>Answer</u>	<u>Objective</u>
38. cumulative action	5
39. tolerance	5
40. drug dependence	5
41. smaller	5
longer	5
42. desired action	4
43. senility	19
disease	19
44. false	6
45. true	6

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**Section B: Administer Oral Medication Using a Medication Card System**

**Objective 1:** Define the following terms:

- a) aq.
- b) agit.
- c) elixir
- d) emulsion
- e) medicine cup
- f) scored tablet
- g) suspension
- h) syrup
- i) syringe

**Learner Activity:**

**Article:** Read **Article 1**  
"Terminology and Abbreviations"

**Exercise:** Complete **Exercise 1**  
"Terminology and Abbreviations"



## Administer Oral Medication Using a Medication Card System

### Article 1

#### Terminology and Abbreviations

Aq.:

Water

Agit.:

Shake, stir

Elixir: (elix)

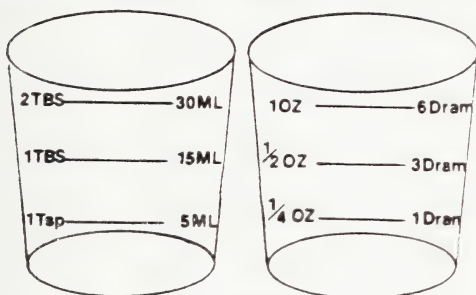
A clear liquid made up of a drug dissolved in alcohol and water.

Emulsion:

Small droplets of water in oil or oil in water, used to mask bitter tastes or increase solubility of certain drugs.

Medicine Cup:

A glass/plastic cup that has 3 scales (apothecary, metric and household) for the measurement of liquid medications.



Medicine Cup  
Figure 1

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne, N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co.

Scored Tablet:

A grooved tablet whose indentation may be used to divide a dosage.



Scored Tablet  
Figure 2

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne, N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co.



## Administer Oral Medication Using a Medication Card System

### Article 1

#### Terminology and Abbreviations

##### Suspension: (susp.)

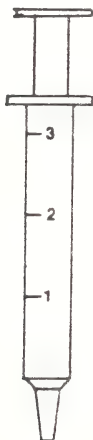
A liquid dosage form that contains solid, insoluble drug particles. All suspensions need to be shaken well before administering to ensure thorough mixing of particles.

##### Syrup: (syr.)

A medicinal agent dissolved in a concentrated solution of sugar.

##### Syringe:

A plastic oral syringe may be used to measure liquid medications accurately. Various sizes are available to measure volumes from 0.1 ml. to 15 ml.



Syringe  
Figure 3

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne, N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co.

Clayton, Bruce D., Squire Jessie E., and Stock, Yvonne, N., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co.

## Administer Oral Medication Using a Medication Card System

### Article 1

### Exercise 1

#### Terminology and Abbreviations

Match the term in Column A with the appropriate description in Column B:

<u>Column A</u>	<u>Column B</u>
1. _____ elixir	a) used for liquid measurement
2. _____ emulsion	b) drug dissolved in alcohol/water
3. _____ scored tablet	c) contains solid insoluble drug particles
4. _____ medicine cup	d) droplets of oil in water
5. _____ syrup	e) drug dissolved in sugar
6. _____ suspension	f) used to divide a dosage
7. _____ agit.	g) abbreviation for elixir
8. _____ susp.	h) shake
9. _____ syringe	i) abbreviation for suspension
10. _____ elix.	j) measures volumes of 0.1 ml. accurately

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Administer Oral Medication Using a Medication Card System

Article 1

Exercise 1

ANSWER SHEET

Terminology and Abbreviations

Match the term in Column A with the appropriate description in Column B:

<u>Column A</u>	<u>Column B</u>
1. <u>  b  </u> elixir	a) used for liquid measurement
2. <u>  d  </u> emulsion	b) drug dissolved in alcohol/water
3. <u>  f  </u> scored tablet	c) contains solid insoluble drug particles
4. <u>  a  </u> medicine cup	d) droplets of oil in water
5. <u>  e  </u> syrup	e) drug dissolved in sugar
6. <u>  c  </u> suspension	f) used to divide a dosage
7. <u>  h  </u> agit.	g) abbreviation for elixir
8. <u>  i  </u> susp.	h) shake
9. <u>  j  </u> syringe	i) abbreviation for suspension
10. <u>  g  </u> elix.	j) measures volumes of 0.1 ml. accurately

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**Section B:   Administer Oral Medication Using a Medication Card System**

**Objective 2:**      Identify the components of the medication card system of administering oral medications.

**Learner Activity:**

**Article:**            Read **Article 2**  
                             "The Medication Card System of Medication Delivery"

**Exercise:**            Complete **Exercise 2**  
                             "Identify Information Missing From the Medication Cards"

                             Complete **Exercise 3**  
                             "Medication Card System"

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## Administer Oral Medication Using a Medication Card System

### Article 2

#### The Medication Card System of Medication Delivery

The medication card system involves the doctor's order for a medication being transcribed by a RN/unit clerk into medication cards, medication kardex, or kardex.

The medication cards are stored in a central area, usually a time slot frame in the medication room (see Figure 4) or placed in a medication kardex.



Medication Room

Figure 4

Asperheim, Mary K., and Eisenhauer Laurel, A., The Pharmacologic Basis of Patient Care, 4th Ed., Philadelphia, 1981, W.B. Saunders Co.

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## Administer Oral Medication Using a Medication Card System

### Article 2

#### The Medication Card System of Medication Delivery

A **medication kardex** is a kardex designed only for medications. It resembles a medication record sheet, lists all medications ordered for the patient, and serves as a check for the medication cards.

Some medication cards are **color coded** to time, route or type of medication eg. "p.o." medications on white cards. Others have hours printed on the card for use. (See Figures 5, 6, 7, p. 8-9)

Cards should bear the following information:  
name and room of patient; patient's identification number; name of medicine; dosage; time of administration; route of administration if there is any question about how it might be given; and special precautions.

<u>Mrs. Melvin Nigon</u>
(Name)
<u>2 - 190</u>
(Room No.)
 Digitoxin
0.2 mg. b.i.d.
(orally)
8 -
4 -
Count Pulse

Figure 5      Medication Cards

<u>Michael Morris</u>
(Name)
<u>3 - 160</u>
(Room No.)
 Compazine
syrup
<i>M</i> i t.i.d.
8 -
1 -
5 -

Figure 6

Bergeisen, Betty S., and Goth, Andres., Pharmacology in Nursing, 13th Ed., Saint Louis, 1976, The C.V. Mosby Co.



## Administer Oral Medication Using a Medication Card System

### Article 2

#### The Medication Card System of Medication Delivery

MAGEE - JEAN															
212 B															
Medicine      TYLENOL															
600 mg.      t.i.d. p.o.															
Date ordered				D.C. Date				Initial							
5 - 1				5-5 9 pm											
		X				X									
7	8	9	10	11	12	13	14	15	16	17	18				

Medication Card  
Figure 7

Notice that the top of card contains the patient's name, last name first, Magee - Jean. This is now frequently printed by the admission addressograph plate, and may contain other information. Next is the room number, 212B, routinely printed in pencil, since the patient may occupy more than one room during his hospital stay, and it may be erased and changed. Next is the medication ordered, Tylenol, the dosage, 600 mg., the frequency of administration, t.i.d., and the route of administration, p.o. This card also contains a date ordered area to record the date the administration was started and D.C., date area, which indicates when the drug should be discontinued (D.C.'ed). The 'Initial' column on the right is very important, because it indicates that the card has been checked for accuracy by the RN who initials it, who must then assume responsibility for any transcribing errors. A card not initialed should not be used, if such verification is hospital policy.

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur Inc.

The time on this card is expressed in military time, which many hospitals now use (0-24 hours). The blocks above the times are x'ed to indicate at a glance when the medication should be given, 9-13-21 (9 a.m.-1 p.m.-9 p.m.). The t.i.d, q.i.d, etc., schedule varies from hospital to hospital, so is not consistent.

There is a built-in weakness in this card that you should be aware of, and it concerns the fact that the x column is above the time column. Having been trained from birth to write from left to right, and top to bottom, it would be extremely easy to x the wrong column underneath the time for a daytime medication, instead of above. Just a factor to keep in mind.

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, CA, 1979, Wallcur, Inc.

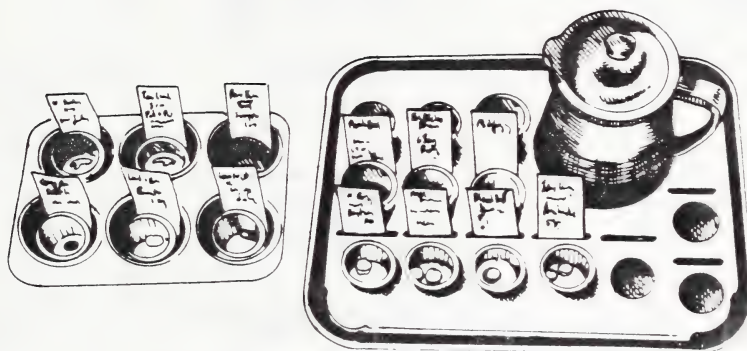


## Administer Oral Medication Using a Medication Card System

### Article 2

#### The Medication Card System of Medication Delivery

Each medication card is placed on a medication tray or cart, next to the correct drug and carried or wheeled to the right patient for identification. (See Figure 8).



Medication Trays  
Figure 8

Clayton, Bruce D., and Squire, Jessie E., Basic Pharmacology for Nurses, 7th Ed., St. Louis, 1981, The C.V. Mosby Co.

Pharmacy may dispense individual perscriptions or verify that the drug is available from stock containers.

## Administer Oral Medication Using a Medication Card System

### Article 2

#### The Medication Card System of Medication Delivery

Individual perscriptions are usually placed in a medication cupboard which has different slots arranged to room and bed number. (See Figure 9).

Stock medications are a large supply of one medication, by the same dosage and route stored in one labelled container. (See Figure 10)

Room 2108.2 Mrs. Mary Smart  Digoxin  0.125 mg.  p.o. q.d.  1000 hrs.  Dr. Rose
--

Individual Perscription  
Figure 9

A.S.A  325 mg.  p.o.
----------------------------------

Stock Container  
Figure 10

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## Administer Oral Medication Using a Medication Card System

### Article 2

### Exercise 2

#### Identify Information Missing From the Medication Cards

Mary Smith  
#214670  
Rm 2110-2  
Diuril

p.o.

q.d.  
1000

1.

a. \_\_\_\_\_

Darryl  
Rm 201-2

Metamucil

p o.

b.i.d.

2.

a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

Miss Collins  
#5670

Amphojel

5 ml.  
1 hour  
p.c. every  
meal  
0900 1300

3.

a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
\_\_\_\_\_

Rose Cook  
# 3646  
Rm 212-1

Motrin  
q.i.d.

4.

a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
\_\_\_\_\_

Susie Brown

Indocid

25 mg.  
b.i.d.

1000

5.

a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
\_\_\_\_\_

Maalox

p.o.  
a.c. every  
meal  
0730 1130

6.

a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_  
e. \_\_\_\_\_

Administer Oral Medication Using a Medication Card System

Article 2

Exercise 2

ANSWER SHEET

Identify Information Missing From the Medication Cards

Mary Smith  
#214670  
Rm 2110-2  
Diuril

p.o.

q.d.  
1000

1.

a. Dosage

Darryl  
Rm 201-2

Metamucil

p o.

b.i.d.

2.

- a. Patient's I.D. #  
b. Last name  
c. Dosage  
d. Specific times

Miss Collins  
#5670

Amphojel

5 ml.  
1 hour  
p.c. every  
meal  
0900 1300

3.

- a. Room #  
b. First name  
c. Time of last dose

Rose Cook  
# 3646  
Rm 212-1

Motrin  
q.i.d.

4.

- a. Route  
b. Dosage  
c. Specific times

Susie Brown

Indocid

25 mg.  
b.i.d.

1000

5.

- a. I.D. #  
b. Room #  
c. Time of 2nd dose

Maalox

p.o.  
a.c. every  
meal  
0730 1130

6.

- a. Patient's name  
b. Room #  
c. I.D. #  
d. Dosage  
e. Time of last Dose

## Administer Oral Medication Using a Medication Card System

### Article 2

#### Exercise 3

#### Medication Card System

##### Fill in the Blanks:

1. Medication cards are stored in a \_\_\_\_\_ in the medication room.
2. Medication cards contain the following information:
  - i) \_\_\_\_\_
  - ii) \_\_\_\_\_
  - iii) \_\_\_\_\_
  - iv) \_\_\_\_\_
  - v) \_\_\_\_\_
  - vi) \_\_\_\_\_
  - vii) \_\_\_\_\_
  - viii) \_\_\_\_\_
3. Each medication card is placed on a medication \_\_\_\_\_ or cart.
4. \_\_\_\_\_ medications are a large supply of one medication by the same dosage and route stored in one labelled container.

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Administer Oral Medication Using a Medication Card System

Article 2

Exercise 3

ANSWER SHEET  
Medication Card System

Fill in the Blanks:

1. Medication cards are stored in a time slot frame in the medication room.
2. Medication cards contain the following information:
  - i) patient name
  - ii) room number
  - iii) identification number
  - iv) name of medicine
  - v) dosage
  - vi) time
  - vii) route
  - viii) special precautions
3. Each medication card is placed on a medication tray or cart.
4. Stock medications are a large supply of one medication by the same dosage and route stored in one labelled container.

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**Section B:** Administer Oral Medication Using a Medication Card System

**Objective 3:** Identify components of a doctor's order for oral medication using a medication card system.

**Learner Activity:**

**Review:** Review **Objective 15**, Section A

**Exercises:** Complete **Exercise 4**  
"Doctor's Orders"

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## Administer Oral Medication Using a Medication Card System

### Exercise 4

#### Doctor's Orders

Interpret the following doctor's orders:

DATE & TIME	PHYSICIAN'S ORDERS	PROGRESS RECORD
6/6/86	1. Maalox <i>3i</i> p.o. h.s.	
	2. Valium gr. <i>ii ss</i> p.o.	
	q.4h.	
	3. Amoxil 1 tsp. p.o. q.6h.	
	4. Diovol 1 tbsp. p.o. b.i.d.	

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

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## Administer Oral Medication Using a Medication Card System

### Exercise 4

#### ANSWER SHEET Doctor's Orders

Interpret the following doctor's orders:

DATE & TIME	PHYSICIAN'S ORDERS	PROGRESS RECORD
6/6/86	1. Maalox $3\frac{1}{2}$ p.o. h.s.	
	2. Valium gr. <del>ii</del> ss p.o.	
	q.4h.	
	3. Amoxil 1 tsp. p.o. q.6h.	
	4. Diovol 1 tbsp. p.o. b.i.d.	

1. Maalox 1 ounce orally at bedtime
2. Valium grains 2 1/2 orally every 4 hours
3. Amoxil 1 teaspoon orally every 6 hours
4. Diovol 1 tablespoon orally twice a day

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## Section B: Administer Oral Medication Using a Medication Card System

Objective 4: Identify safety factors when preparing an oral medication using a medication card system:

- a) read the label three times at eye level while comparing to the medication card
- b) follow the "Five Rights"
  - i) Right Drug
  - ii) Right Dose
  - iii) Right Time
  - iv) Right Route
  - v) Right Patient
- c) maintain medical aseptic technique

### Learner Activity:

Review: Review Objective 16, Section A

- a) gather data
- b) follow agency policy
- c) maintain a safe environment
- d) utilize medical aseptic technique
- e) read the label on the blister pak/unit dose package 3 times while comparing against the medication profile/doctor's order
- f) follow the "Five Rights"
- g) separate conditional medications
- h) note modifications

Review Objectives 1, 2, 3, 4, 6, Pre-requisite Unit

### Articles:

- Read Article 3  
"Safety Factors When Preparing an Oral Medication using a Medication Card System"
- Read Article 4 "Calculating Oral Dosages from Tablets or Capsules"
- Read Article 5 "Calculating Oral Dosages from Liquids"

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**Section B: Administer Oral Medication Using a Medication Card System**

**Objective 4:** Identify safety factors **when preparing** an oral medication using a medication card system:

**Learner Activity**  
(con't)

- Exercises:**
- Complete **Exercise 5** "Safety Factors when Preparing an Oral Medication Using a Medication Card System"
  - Complete **Exercise 6** "Calculate Oral Dosages from Tablets or Capsules"
  - Complete **Exercise 7** "Calculate Oral Dosages from Liquids"
  - Complete **Exercise 8** "Read the Meniscus"

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## Administer Oral Medication Using a Medication Card System

### Article 3

#### Safety Factors When Preparing an Oral Medication using a Medication Card System

a) Read the Label Three Times at Eye Level While Comparing to the Medication Card:

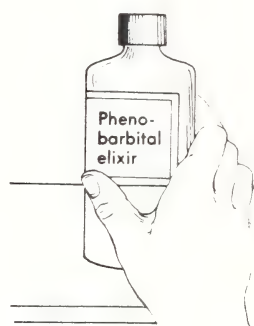
- i) as the medicine is taken from the shelf. (See Figure 11)
- ii) before pouring the medicine. (See Figure 12)
- iii) as the medicine is replaced on the shelf. (See Figure 13)  
\*(See Figures 14, 15, p.22)



Taken From the Shelf  
Figure 11



Before Pouring  
Figure 12



On Replacing  
Figure 13

Bergensen, Betty S., and Goth, Andres., Pharmacology in Nursing, 13th Ed., St. Louis, 1976, C.V. Mosby Co.

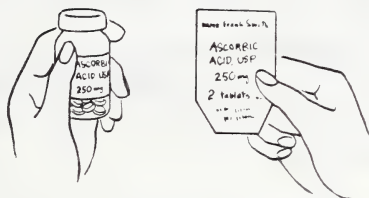
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## Administer Oral Medication Using a Medication Card System

### Article 3

#### Safety Factors When Preparing an Oral Medication using a Medication Card System

- a) Read the Label Three Times at Eye Level While Comparing to the Medication Card: (con't)



Compare to the Medication Card  
Figure 14



At Eye Level  
Figure 15

Wood, L., Nursing Skills for Allied Health Services, Vol. 3, Philadelphia, W.B. Saunders Co.

- b) Right Dosage:

(general rules)

- i) check that the dosage on the medicine container and the dosage on the medication card **coincide**. (See Examples 1, 2, 3, 4, 5, 6, 7 pp. 23-25)
- ii) **calculate** the correct dosage if necessary and have your results checked by a **R.N.** (read Articles 4, 5 and do Exercises 6, 7)

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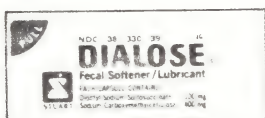
## Administer Oral Medication Using a Medication Card System

### Article 3

#### Safety Factors When Preparing an Oral Medication using a Medication Card System

##### Example 1

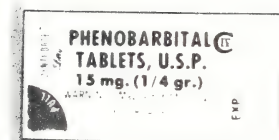
- b) Right Dosage: (con't)  
(general rules)



##### Example 1

This Dialose label lists the names and amounts of two generic drugs: dioctyl sodium sulfosuccinate 100 mg, and sodium carboxymethylcellulose 400 mg. It is not uncommon for tablets or capsules to contain more than one drug, and when this is the case dosages are usually ordered by numbers of tablets to be administered, rather than by drug strength. Notice that no dosage strength is given for Dialose, and for combination drugs this is frequently the case.

##### Example 2



##### Example 2

This label bears only one name, phenobarbital, which is actually the generic name of the drug. This is frequently the case with drugs which have been in use for many, many years. The official name was so well established that drug manufacturers did not try to promote their own trade names. Also notice that this label gives the dosage strength of phenobarbital in both metric and apothecaries' units of measure. This too is a holdover from the drugs' long history of use. It is one the drugs still occasionally ordered in the older apothecaries' measures.

##### Example 3



##### Example 3

Notice the number 100 (capsules) in the upper right hand corner. This indicates that the total number of capsules in the bottle is 100. Be very careful not to confuse this number with the dosage strength. The dosage strength always has a unit of measure beside it, in this case mg., 25 mg.



## Administer Oral Medication Using a Medication Card System

### Article 3

#### Safety Factors When Preparing an Oral Medication using a Medication Card System

- b) Right Dosage: (con't)  
(general rules)

##### **POTASSIUM CHLORIDE**

Oral Solution

20 mEq. per 15 ml.

#### Example 4

#### Example 4

The strength of drugs in solution is occasionally expressed in millequivalents = mEq. Millequivalents is an expression of the number of grams of a drug contained in 1 ml. of a normal solution. Potassium chloride is usually ordered in mEq.

**V - cillin K**  
250 mg. (400,000u)

#### Example 5

#### Example 5

A unit,u, is an expression of the biological action of the drug rather than its actual weight. Notice the large quantity in some average doses. An antibiotic could be ordered in 1,000,000 u (one million units). In the example of V-Cillin K, 400,000 u = 250 mg. Units are also written as I.U., international units to indicate an international standard. eg. Vitamin A 3,700 I.U.

Health Protection and Drug Laws, Ottawa, 1983, Canadian Government Publishing Centre.

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur Inc.

## Administer Oral Medication Using a Medication Card System

### Article 3

#### Safety Factors When Preparing an Oral Medication using a Medication Card System

- b) Right Dosage: (con't)  
(general rules)

**PANCREATIN  
TABLETS**

5 grs  
(325 mg.)

Example 6

Example 6 states  
5 grs = 325 mg.

Example 6

**POTASSIUM  
CHLORIDE  
TABLETS**

(Enteric) 300 mg. (5 grs)

Example 7

Example 7 states  
5 grs. = 300 mg.

Example 7

#### Conclusion Examples 6, 7

- A. conversions are **equivalents** not exact measures
- B. the table in **Objective 3**  
Pre-requisite unit states 1 grain = 60 mg.
- C. actually 1 grain = approximately 64 mg.
- D. the tendency is to round off numbers, so you are more likely to see 60 than 64 mg., but you will see **both**.
- E. discrepancies like 15 or 16 grains = 1.0 gram result from the fact that the apothecaries system is so inaccurate
- F. **question** all inconsistencies you are unfamiliar with as the smaller the dosage the more significant the discrepancy. eg. 0.3 mg. or 0.4 mg. is an enormous difference as the drug potency is much greater.

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur Inc.

## Administer Oral Medication Using a Medication Card System

### Article 3

#### Safety Factors When Preparing an Oral Medication using a Medication Card System

b) Right Dosage:

(scored tablet)

iii) note if the tablet is to be divided. Break on the scored outline as indicated.

iv) discard unevenly broken scored tablet as per agency policy ie. hopper. Have a R.N., R.N.A. witness wastage if required by hospital policy.

(controlled dispenser)

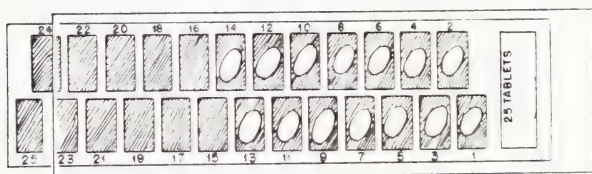
v) note markings on top of each compartment as #1, #2, #3 etc.

vi) note if using a dial dispenser the counter-clockwise numbering #25 to #24 etc. (See Figure 16)

vii) use highest numbered compartment for dose. (See Figures 16, 17)



Dial Dispenser  
Figure 16



Box Dispenser  
Figure 17

Wood, L., Nursing Skills for Allied Health Services, Vol. 3, Philadelphia, W.B. Saunders Co.

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## Administer Oral Medication Using a Medication Card System

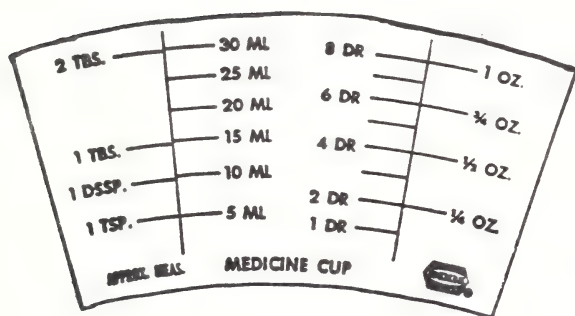
### Article 3

#### Safety Factors When Preparing an Oral Medication using a Medication Card System

b) Right Dosage: (con't)  
(liquid medication)

viii) use **appropriate** measuring device  
eg. medicine cup with metric  
standards. (See Figure 18) or  
syringe for smaller amounts, eg.  
under 5 ml.

ix) use the correct amount and type of  
diluent recommended by the  
manufacturer, eg. 1 teaspoon of  
Metamucil with 240 ml. of water



Medicine Cup  
Figure 18

Curren, Anna M., Math for Meds  
3rd Ed., Seal Beach, Ca, 1979,  
Wallcur, Inc.

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## Administer Oral Medication Using a Medication Card System

### Article 3

#### Safety Factors When Preparing an Oral Medication using a Medication Card System

b) Right Dosage: (con't)  
(liquid medication)

x) examine the medication cup and locate the exact measurement. Place your finger nail at this level.  
(See Figure 19)

xi) shake liquid medication if necessary to evenly dispense the medication.



Examine the Medication Cup  
Figure 19

Bergensen, Betty S., and Goth, Andres.,  
Pharmacology in Nursing, 13th Ed.,  
St. Louis, 1976, C.V. Mosby Co.

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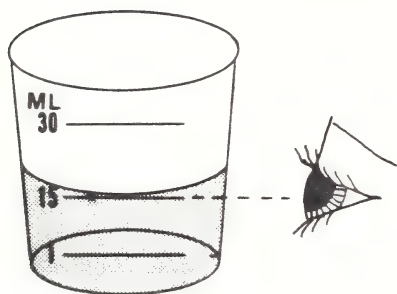
## Administer Oral Medication Using a Medication Card System

### Article 3

#### Safety Factors When Preparing an Oral Medication using a Medication Card System

b) Right Dosage: (con't)  
(liquid medications)

xii) hold the medicine cup to eye level when pouring a liquid medication for accurate measurement. (See Figure 20)



Eye Level  
Figure 20

Squire, Jessie E., Stock, Yvonne N., and Clayton, Bruce C., Basic Pharmacology For Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co.

xiii) read the meniscus (See Figure 20, complete Exercise 8). The meniscus is caused by the surface tension of the solution against the walls of the container. The surface tension causes the formation of a concave or hollowed curvature on the surface of the solution. Read the level at the lowest point of the concaved curve.

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## Administer Oral Medication Using a Medication Card System

### Article 3

#### Safety Factors When Preparing an Oral Medication using a Medication Card System

c) Maintain Medical Aseptic Technique:  
(capsule/tablet)



- i) pour required capsule/tablet into cap of medicine container or in a medicine cup if using a dispenser without touching the drug. (See Figure 21)
- ii) pour extra capsules/tablets back into the medicine container without touching the drug.

Pour Capsules/Tablets  
Figure 21

Wood, L., Nursing Skills for Allied Health Services, Vol. 3, Philadelphia, W.B. Saunders Co.

(scored tablet)

- iii) cover the scored tablet with a paper towel and break manually or cut with a knife edge on the appropriate scored line.

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## Administer Oral Medication Using a Medication Card System

### Article 3

#### Safety Factors When Preparing an Oral Medication using a Medication Card System

c) Maintain Medical Aseptic Technique: (con't)

(liquid medication)

iv) wipe lip of medicine bottle with a paper towel before use. (Optional - if lip sticky).

v) discard excess liquid medication as per agency policy to prevent contamination of bottle contents. (Have RN, RNA witness, if required)

vi) place cap with lid up on counter when pouring. (See Figure 22)



Cap Lid Up  
Figure 22

Wood, L., Nursing Skills for Allied Health Services, Vol. 3, Philadelphia  
W.B. Saunders Co.

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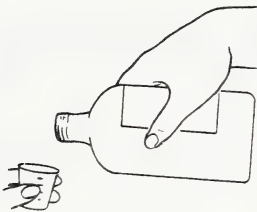
## Administer Oral Medication Using a Medication Card System

### Article 3

#### Safety Factors When Preparing an Oral Medication using a Medication Card System

- c) Maintain Medical Aseptic Technique: (con't)  
(liquid medication)

- vii) hold bottle with label facing your palm when pouring to prevent soiling/fading of label. (See Figure 23)



Label Facing Palm  
Figure 23

Wood, L., Nursing Skills for Allied Health Services, Vol. 3, Philadelphia, W.B. Saunders Co.

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Administer Oral Medication Using a Medication Card System

Article 3

Exercise 5

Safety Factors When Preparing an Oral  
Medication Using a Medication Card System

Indicate if the following statements are True or False:

- |  | <u>True</u>              | <u>False</u>             |
|--|--------------------------|--------------------------|
| 1. Use the lowest numbered compartment for the 1st dose when using a controlled dispenser. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. The meniscus is the lowest point of the concaved curve.                                 | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. You are allowed to touch a capsule if you have just washed your hands.                  | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Hold the medication bottle with label facing your palm.                                 | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Tablets can contain more than one drug.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Medication can be ordered by number of tablets/capsules.                                | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Dosage strength is always ordered by metric units.                                      | <input type="checkbox"/> | <input type="checkbox"/> |

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## Administer Oral Medication Using a Medication Card System

### Article 3

### Exercise 5

#### Safety Factors When Preparing an Oral Medication Using a Medication Card System

Indicate if the following statements are True or False:

	<u>True</u>	<u>False</u>
8. Dosage strength always has a unit of measure beside it.	<input type="checkbox"/>	<input type="checkbox"/>
9. Every medication label contains a generic and trade name of the drug.	<input type="checkbox"/>	<input type="checkbox"/>
10. A scored tablet can be divided on the indentation.	<input type="checkbox"/>	<input type="checkbox"/>
11. Place your finger nail at the volume level of the medicine cup <u>after</u> you pour the liquid medication.	<input type="checkbox"/>	<input type="checkbox"/>
12. Place the medicine cup on the counter when pouring a liquid medication.	<input type="checkbox"/>	<input type="checkbox"/>
13. Conversions are exact measures.	<input type="checkbox"/>	<input type="checkbox"/>
14. Units are expressions of biological drug action.	<input type="checkbox"/>	<input type="checkbox"/>
15. mEq is an expression of the number of grams of a drug in 1 ml. of solution.	<input type="checkbox"/>	<input type="checkbox"/>

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Administer Oral Medication Using a Medication Card System

Article 3

Exercise 5

ANSWER SHEET

Safety Factors When Preparing an Oral  
Medication Using a Medication Card System

Indicate if the following statements are True or False:

	<u>True</u>	<u>False</u>
1. Use the lowest numbered compartment for the 1st dose when using a controlled dispenser.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. The meniscus is the lowest point of the concaved curve.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. You are allowed to touch a capsule if you have just washed your hands.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Hold the medication bottle with label facing your palm.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Tablets can contain more than one drug.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Medication can be ordered by number of tablets/capsules.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Dosage strength is always ordered by metric units.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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Administer Oral Medication Using a Medication Card System

Article 3

Exercise 5

ANSWER SHEET

Safety Factors When Preparing an Oral  
Medication Using a Medication Card System

Indicate if the following statements are True or False:

- |   | <u>True</u>                         | <u>False</u>                        |
|---|-------------------------------------|-------------------------------------|
| 8. Dosage strength always has a unit of measure beside it.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 9. Every medication label contains a generic and trade name of the drug.  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 10. A scored tablet can be divided on the indentation.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 11. Place your finger nail at the volume level of the medicine cup <u>after</u> you pour the liquid medication. | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 12. Place the medicine cup on the counter when pouring a liquid medication.                                     | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 13. Conversions are exact measures.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 14. Units are expressions of biological drug action.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 15. mEq is an expression of the number of grams of a durg in 1 ml. of solution.                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

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## Administer Oral Medication Using a Medication Card System

### Article 4

#### Calculating Oral Dosages From Tablets or Capsules

Sometimes RNA's must calculate the dosage of an oral drug because the amount of drug available is different than what is ordered. For example, the physician may order X grams of a drug in tablet form but not specify the number of tablets. It would then be the RNA's responsibility to calculate the number of tablets needed for the patient.

The formula for calculating the number of tablets or capsules is:

DOSE DESIRED

X DRUG FORM = AMOUNT TO ADMINISTER

DOSE ON HAND

The dose desired is the dosage of drug to be administered. The dose on hand is the dosage of drug available. The drug form is the number of tablets or capsules per dose. The dose desired and dose on hand must be expressed in like terms.

**EXAMPLE:** A. The physician's order reads "Lanoxin 0.25 mg. p.o. q.d." Lanoxin is available in 0.125 mg. p.o. q.d. tablets. How many tablets will you administer for each dose?

First Step      Dose desired X Drug form = Amount to Administer  
(use formula)      Dose on hand

Dose desired (0.25 mg.) X Drug form (1 tab.)  
Dose on hand (0.125 mg.)

0.25 mg. X 1 tab.  
0.125 mg.

0.25 mg. X 1 tab.  
0.125 mg.

0.125  $\sqrt{0.25}$

0.125.  $\sqrt{0.250.}$   
     $\swarrow$          $\searrow$   
        2

2 tabs. of Lanoxin  
0.125 mg. will be administered

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.



## Administer Oral Medication Using a Medication Card System

### Article 4

#### Calculating Oral Dosages From Tablets or Capsules

**EXAMPLE:** B. The physician's order reads "Quinidine Sulfate 0.4 g p.o. q.6h". Quinidine Sulfate is available in 200 mg. tablets. How many tablets should be administered for one dose? How many tablets should be administered for a 24 hour period?

Notice that the drug is ordered in grams, but the dosage in which it is available is in milligrams. The first step in this problem is to change the grams ordered to milligrams. Remember the dose desired and the dose on hand must be expressed in like terms.

First Step  
(grams to  
milligrams)

$$1 \text{ g} = 1000 \text{ mg.}$$

$$\text{Set up a ratio: } \frac{1000 \text{ mg.}}{1 \text{ g.}} = \frac{s \text{ mg.}}{0.4 \text{ g.}}$$

$$1000 \text{ mg.} \times 0.4 \text{ g} = 1 \text{ g} \times s$$

$$400.0 \text{ mg./g} = 1 \text{ g} \times s$$

$$\frac{400.0 \text{ mg./g}}{1 \text{ g}} = s$$

$$\underline{400 \text{ mg.} = s} \quad (\text{Dose desired} = 400 \text{ mg.})$$

Second Step  
(use formula)

$$\frac{\text{Dose desired}}{\text{Dose on hand}} \times \text{Drug form} = \text{Amount to Administer}$$

$$\frac{400 \text{ mg.}}{200 \text{ mg.}} \times 1 \text{ tab.} =$$

$$\frac{400}{200} \times 1 \text{ tab.} =$$

$$2 \times 1 \text{ tab.} = 2 \text{ tabs.}$$

$$\underline{\text{one dose} = 2 \text{ tabs.}}$$

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Administer Oral Medication Using a Medication Card System

### Article 4

#### Calculating Oral Dosages From Tablets or Capsules

##### Example B: (con't)

Third Step q.6h. is given 4 times per day  
(24 hr. period)

$$4 \times 2 \text{ tabs.} = 8 \text{ tabs.}$$

$$\underline{24 \text{ hour period} = 8 \text{ tabs.}}$$

**EXAMPLE: C.** The physician's order reads, "Phenergan 5 mg. p.o. q.i.d." There are 10 mg. tablets available, scored in half. How many tablets in a dose?

First Step Dose desired X Drug form = amount to Administer  
(use formula) Dose on hand

$$\frac{5 \text{ mg.}}{10 \text{ mg.}} \times 1 \text{ tab.} =$$

$$\frac{5}{10} \times 1 \text{ tab.}$$

$$\frac{1}{2} \times 1 \text{ tab.} = \frac{1}{2} \text{ tab.}$$

There is  $\frac{1}{2}$  tablet in a dose.

**EXAMPLE: D.** The physician's order reads "Colace 100 mg. p.o. q.h.s.". Colace is available in 100 mg. capsules. How many capsules will be administered each day?

First Step Dose desired X Drug form = Amount to Administer  
(use formula) Dose on hand

$$\frac{100 \text{ mg.}}{100 \text{ mg.}} \times 1 \text{ cap.} =$$

$$\frac{100}{100} \times 1 \text{ cap.}$$

$$1 \times 1 \text{ cap.} = 1 \text{ cap.}$$

1 capsule will be administered each day.

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

Administer Oral Medication Using a Medication Card System

Article 4

Exercise 6

Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosages from the dose ordered and the dose available:

1. Aldomet 500 mg. p.o. b.i.d. (available 250 mg. tab.)
  
  
  
  
  
  
  
  
  
  
2. Valium 5 mg. p.o. t.i.d. (available 10 mg. tab.)
  
  
  
  
  
  
  
  
  
  
3. Digoxin 0.25 mg. p.o. q.d. (available 0.125 mg. tab.)
  
  
  
  
  
  
  
  
  
  
4. Lasix 40 mg. p.o. q.i.d. (available 40 mg. tab.)

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## Administer Oral Medication Using a Medication Card System

### Article 4

### Exercise 6

#### ANSWER SHEET

#### Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosages from the dose ordered and the dose available:

1. Aldomet 500 mg. p.o. b.i.d. (available 250 mg. tab.)

$$\frac{500 \text{ mg.}}{250 \text{ mg.}} \times 1 \text{ tab.} = \frac{500}{250} \frac{2}{1} \times 1 \text{ tab.}$$

$$2 \times 1 \text{ tab.} = \underline{2 \text{ tabs.}}$$

2. Valium 5 mg. p.o. t.i.d. (available 10 mg. tab.)

$$\frac{5 \text{ mg.}}{10 \text{ mg.}} \times 1 \text{ tab.} = \frac{5}{10} \frac{1}{2} \times 1 \text{ tab.}$$

$$\frac{1}{2} \times 1 \text{ tab.} = \underline{\frac{1}{2} \text{ tab.}}$$

3. Digoxin 0.25 mg. p.o. q.d. (available 0.125 mg. tab.)

$$\frac{0.25 \text{ mg.}}{0.125 \text{ mg.}} \times 1 \text{ tab.} = \frac{0.25}{0.125} \frac{2}{1} \times 1 \text{ tab.}$$

$$2 \times 1 \text{ tab.} = \underline{2 \text{ tabs.}}$$

4. Lasix 40 mg. p.o. q.i.d. (available 40 mg. tab.)

$$\frac{40 \text{ mg.}}{40 \text{ mg.}} \times 1 \text{ tab.} = \frac{40}{40} \frac{1}{1} \times 1 \text{ tab.}$$

$$1 \times 1 \text{ tab.} = \underline{1 \text{ tab.}}$$

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### Administer Oral Medication Using a Medication Card System

## Article 4

### Exercise 6

### Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosage by comparing the medication card to the medication label:

5.

HAPPE, WALTER  
308


Medicine THYROID  
90 mg q. am

Date Ordered \_\_\_\_\_ D. C. Date \_\_\_\_\_ Initial hh

		X																	
-	7	8	9	10	11	12	13	14	15	16	17	18	-						
-	19	20	21	22	23	0	1	2	3	4	5	6	-						

CAUTION—Federal  
U.S.A. law prohibits  
prescription  
without  
Usual Adult Dose—30  
to 200 mg. a day.  
Indiscriminate use may be  
dangerous!

NDC 0007-0114-02  
100 ENSEALS<sup>®</sup> No 38



**THYROID  
TABLETS, USP  
(Enteric)**

**30 mg. (1/2 gr.)**

**Keep Tightly Closed**  
Thyroid Tablets, Enteric Release  
Formulation, Searle, Inc.  
VA 5822 AAR  
© 1965 Searle, Inc.  
Exp. Date 5-31-68

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# Administer Oral Medication Using a Medication Card System

## Article 4

## Exercise 6

### ANSWER SHEET

### Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosage by comparing the medication card to the medication label:

5.

HAPPE, WALTER  
308

Medicine THYROID  
90 mg g. am

Date Ordered \_\_\_\_\_ D. C. Date \_\_\_\_\_ Initial hh

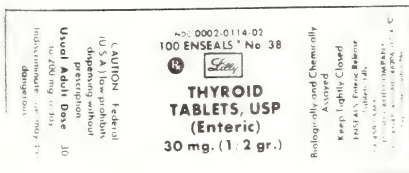
			X														
-	7	8	9	10	11	12	13	14	15	16	17	18	-				
-	19	20	21	22	23	0	1	2	3	4	5	6	-				

$\frac{\text{Dose Desired}}{\text{Dose on Hand}} \times \text{Drug Form} = \text{Amount to Administer}$

$$\frac{90 \text{ mg.}}{30 \text{ mg.}} \times 1 \text{ tab.}$$

$$\frac{90}{30} \times 1 \text{ tab.}$$

$$3 \times 1 \text{ tab.} = \underline{3 \text{ tabs.}}$$



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## Administer Oral Medication Using a Medication Card System

### Article 4

### Exercise 6

#### Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosage by comparing the medication card to the medication label:

6.

NAME		
Maurice, Bill		
ROOM AND BED NO.		
340		
MEDICATION AND DOSAGE		
trifluoperazine		
20mg		
qid		
TIME		
9-1-5-9		
START DATE	STOP DATE	INIT.
		LG
MEDICATION CARD		
VA FORM 10-2357 NOV 1953		
• GPO : 1965-O-761-599		

INT.	Stelazine®
5 mg. CO.	
5 mg.	
LOT 24506	

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca,  
1979, Wallcur, Inc.



Administer Oral Medication Using a Medication Card System

Article 4

Exercise 6

ANSWER SHEET

Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosage by comparing the medication card to the medication label:

6.

NAME <i>Maurice, Bill</i>		
ROOM AND BED NO <i>340</i>		
MEDICATION AND DOSAGE <i>trifluoperazine</i> <i>20mg</i> <i>qid</i>		
TIME <i>9-1-5-9</i>		
START DATE	STOP DATE	INIT <i>LG</i>
MEDICATION CARD VA FORM 10-2357, NOV 1953 • GPO: 1965-O-761-599		

UNIVERSITY OF SOUTH ALABAMA	<b>Stelazine*</b> trifluoperazine, 5 mg. as the hydrochloride <b>5 mg.</b> C LOT 24S06
--------------------------------------	--

$\frac{\text{Dose Desired}}{\text{Dose on Hand}} \times \text{Drug Form} = \text{Amount to Administer}$

$$\frac{20 \text{ mg.}}{5 \text{ mg.}} \times 1 \text{ tab.}$$

$$\frac{20}{5} \times 1 \text{ tab.}$$

$$4 \times 1 \text{ tab.} = \underline{4 \text{ tabs.}}$$

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## Administer Oral Medication Using a Medication Card System

### Article 4

### Exercise 6

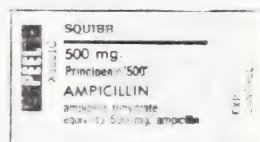
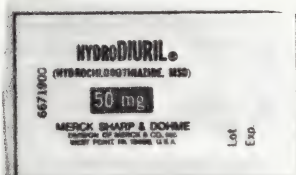
#### Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosages by comparing the medication label (dose available) to the dose ordered:



7. (Ordered 0.05 mg. tab.)  
p.o. q.d.

8. (Ordered 50 mg. tab. p.o. b.i.d.)



9. (Ordered 25 mg. tab. p.o. q.d.) 10. (Ordered 500 mg. cap. p.o. q.6h.)

Curren, Ann M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur, Inc.

# Administer Oral Medication Using a Medication Card System

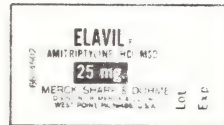
## Article 4

## Exercise 6

### ANSWER SHEET

### Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosages by comparing the medication label  
(dose available) to the dose ordered:



7. (Ordered 0.05 mg. tab.)  
p.o. q.d.

$$\frac{0.05 \text{ mg.}}{0.1 \text{ mg.}} \times 1 \text{ tab.}$$

$$\frac{0.05}{0.1} \times 1 \text{ tab.}$$

$$\frac{1}{2} \times 1 \text{ tab.}$$

$$\frac{1}{2} \text{ tab.}$$

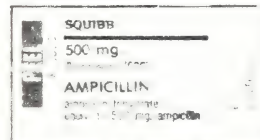
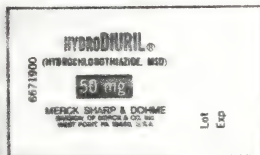
8. (Ordered 50 mg. tab. p.o. b.i.d.)

$$\frac{50 \text{ mg.}}{25 \text{ mg.}} \times 1 \text{ tab.}$$

$$\frac{50}{25} \times 1 \text{ tab.}$$

$$2 \times 1 \text{ tab.}$$

$$2 \text{ tabs.}$$



9. (Ordered 25 mg. tab. p.o. q.d.) 10. (Ordered 500 mg. cap. p.o. q.6h.)

$$\frac{25 \text{ mg.}}{50 \text{ mg.}} \times 1 \text{ tab.}$$

$$\frac{25}{50} \times 1 \text{ tab.}$$

$$\frac{1}{2} \times 1 \text{ tab.}$$

$$\frac{1}{2} \text{ tab.}$$

$$\frac{500 \text{ mg.}}{500 \text{ mg.}} \times 1 \text{ cap.}$$

$$\frac{500}{500} \times 1 \text{ cap.}$$

$$1 \times 1 \text{ cap.}$$

$$1 \text{ cap.}$$

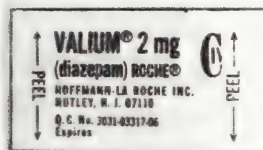
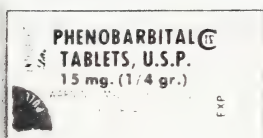
Administer Oral Medication Using a Medication Card System

Article 4

Exercise 6

Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosages by comparing the medication label  
(dose available) to the dose ordered:



11. (Ordered gr.  $\frac{1}{2}$  tab. p.o. b.i.d.) 12. (Ordered 5 mg. tab. p.o. t.i.d.)

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Wallcur, Inc.

Administer Oral Medication Using a Medication Card System

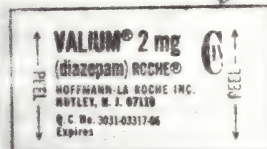
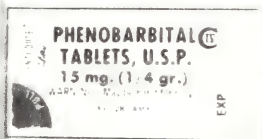
Article 4

Exercise 6

ANSWER SHEET

Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosages by comparing the medication label  
(dose available) to the dose ordered:



11. (Ordered gr.  $\frac{1}{2}$  tab. p.o. b.i.d.) 12. (Ordered 5 mg. tab. p.o. t.i.d.)

$$\frac{\text{gr. } \frac{1}{2}}{\text{gr. } \frac{1}{4}} \times 1 \text{ tab.}$$

$$\frac{5 \text{ mg.}}{2 \text{ mg.}} \times 1 \text{ tab.}$$

$$\frac{.50}{.25} \times 1 \text{ tab.}$$

$$\frac{5}{2} \times 1 \text{ tab.}$$

$$2 \times 1 \text{ tab.} = \underline{2 \text{ tabs.}}$$

$$2.5 \times 1 \text{ tab.} = \underline{2.5 \text{ tabs.}}$$

Administer Oral Medication Using a Medication Card System

Article 4

Exercise 6

Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosages from the dose ordered and the dose available:

13. Indocid 50 mg. p.o. b.i.d.  
(available 25 mg. cap.)

14. Aspirin 600 mg. p.o. q.6h.  
(available gr.  $\bar{V}$  tab.)

Administer Oral Medication Using a Medication Card System

Article 4

Exercise 6

ANSWER SHEET

Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosages from the dose ordered and the dose available:

13. Indocid 50 mg. p.o. b.i.d.  
(available 25 mg. cap.)

$$\frac{50 \text{ mg.}}{25 \text{ mg.}} \times 1 \text{ cap.}$$

$$\frac{50^2}{25}$$

$$\frac{50^2}{25} \times 1 \text{ cap.}$$

$$2 \times 1 \text{ cap.}$$

$$\underline{2 \text{ caps.}}$$

14. Aspirin 600 mg. p.o. q.6h.  
(available gr.  $\bar{V}$  tab.)

First Step - use ratio - proportion method

$$\text{gr. } \bar{V} = \text{? mg.}$$

$$1 \text{ gr.} = 60.0 \text{ mg.}$$

$$\frac{1 \text{ gr.}}{60.0 \text{ mg.}} = \frac{\text{gr. } \bar{V}}{s \text{ mg.}}$$

$$\frac{1}{60} = \frac{5}{s}$$

$$60 \times 5 = 1s$$

$$300 = s$$

$$300 \text{ mg.} = s$$

$$\text{gr. } \bar{V} = \underline{300 \text{ mg.}}$$

$$1 \text{ tablet gr. } \bar{V} = \underline{300 \text{ mg.}}$$

Second Step use formula

$$\frac{600 \text{ mg.}}{300 \text{ mg.}} \times 1 \text{ tab.}$$

$$\frac{600}{300} \times 1 \text{ tab.}$$

$$2 \times 1 \text{ tab.}$$

$$\underline{2 \text{ tabs.}}$$



Administer Oral Medication Using a Medication Card System

Article 4

Exercise 6

Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosages from the dose ordered and the dose available:

- |   |   |
|---|---|
| 15. Gantrisin 0.25 g p.o. q.4h.<br>(available 500 mg. tab.) | 16. Motrin 200 mg. p.o. q.4h.<br>(available 400 mg. tab.) |
|---|---|

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Administer Oral Medication Using a Medication Card System

Article 4

Exercise 6

ANSWER SHEET

Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosages from the dose ordered and the dose available:

16. Motrin 200 mg. p.o. q.4h.  
(available 400 mg. tab.)

$$\frac{200 \text{ mg.}}{400 \text{ mg.}} \times 1 \text{ tab.}$$

$$\frac{200}{400} \times 1 \text{ tab.}$$

$$\frac{1}{2} \times 1 \text{ tab.}$$

$$\frac{1}{2} \text{ tab.}$$

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Administer Oral Medication Using a Medication Card System

Article 4

Exercise 6

Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosages from the dose ordered and the dose available:

17. Entrophen 975 mg. p.o. t.i.d. 18. Surfak 240 mg. p.o. q.d.  
(available 325 mg. tab.) (available 240 mg. tab.)

19. Phenobarbital gr.  $\frac{1}{4}$  p.o. q.d. 20. Tylenol 1 g p.o. q.4h.  
(available gr.  $\frac{1}{2}$  tab.) (available 500 mg. cap.)

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## Administer Oral Medication Using a Medication Card System

### Article 4

### Exercise 6

#### ANSWER SHEET

#### Calculate Oral Dosages From Tablets or Capsules

Calculate the following dosages from the dose ordered and the dose available:

17. Entrophen 975 mg. p.o. t.i.d.  
(available 325 mg. tab.)

$$\frac{975 \text{ mg.}}{325 \text{ mg.}} \times 1 \text{ tab.}$$

$$\frac{975}{325} \times 1 \text{ tab.}$$

$$3 \times 1 \text{ tab.}$$

$$\underline{3 \text{ tabs.}}$$

18. Surfak 240 mg. p.o. q.d.  
(available 240 mg. tab.)

$$\frac{240 \text{ mg.}}{240 \text{ mg.}} \times 1 \text{ tab.}$$

$$\frac{240}{240} \times 1 \text{ tab.}$$

$$1 \times 1 \text{ tab.}$$

$$\underline{1 \text{ tab.}}$$

19. Phenobarbital gr  $\frac{1}{4}$   
p.o. q.d.  
(available gr.  $\frac{1}{2}$  tab.)

$$\frac{\text{gr. } 1/4}{\text{gr. } 1/2} \times 1 \text{ tab.}$$

$$\frac{.25}{.50} \times 1 \text{ tab.}$$

$$\frac{1}{2} \times 1 \text{ tab.}$$

$$\underline{\frac{1}{2} \text{ tab.}}$$

20. Tylenol 1 g. p.o. q.4h.  
(available in 500 mg. cap.)

#### First Step - use table

$$1 \text{ g} = 1000 \text{ mg.}$$

#### Second Step - formula

$$\frac{1000 \text{ mg.}}{500 \text{ mg.}} \times 1 \text{ cap.}$$

$$\frac{1000}{500} \times 1 \text{ cap.}$$

$$2 \times 1 \text{ cap.}$$

$$\underline{2 \text{ caps.}}$$

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## Administer Oral Medication Using a Medication Card System

### Article 5

#### Calculating Oral Dosages From Liquid

Drugs in liquid form contain a certain amount of drug in a given amount of solution.

The formula for calculating the dosage of liquid medication is:

**DOSE DESIRED X DRUG FORM = AMOUNT TO ADMINISTER**  
**DOSE ON HAND**

**EXAMPLE: A.** The physician's order reads "Gravol liquid 75 mg. p.o. q.4h." The drug is supplied as 15 mg. per 5 ml. How much medication will this patient receive with each dose?

First Step      Dose desired      x      Drug form = Amount to Administer  
(use formula)      Dose on hand

$$\frac{75 \text{ mg.}}{15 \text{ mg.}} \times 5 \text{ ml.} =$$

$$\frac{75}{15} \times 5 \text{ ml.}$$

$$5 \times 5 \text{ mL.} = 25 \text{ ml.}$$

This patient will receive 25 mL. of Gravol

REMEMBER THE DRUG FORM IS **NOT** ALWAYS 1.

**EXAMPLE: B.** The physician's order reads "Benadryl elixir 50 mg. p.o. t.i.d." The bottle label reads "Benadryl elixir 12.5 mg. per 5 mL." How many millilitres will the patient receive for each dose?

First Step      Dose desired      X      Drug form = Amount to Administer  
(use formula)      Dose on hand

$$\frac{50 \text{ mg.}}{12.5 \text{ mg.}} \times 5 \text{ ml.} =$$

$$\frac{50}{12.5} \times 5 \text{ ml.}$$

$$4 \times 5 \text{ mL.} = 20 \text{ ml.}$$

The patient will receive 20 ml. for each dose.

Aylward, Marie J., and Duff, Deborah Lynn, A Metric Guide for Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.

## Administer Oral Medication Using a Medication Card System

### Article 5

#### Calculating Oral Dosages From Liquid

**EXAMPLE: C.** The physician's order reads "Amoxil suspension 0.25 g p.o. q.8h." If the drug is available in 125 mg. per 5 mL., how much will the patient receive for each dose? How many mL. will be administered each day?

First Step  
(use formula)  
(grams to  
milligrams)

Dose desired x Drug form = Amount to Administer  
Dose on hand

$$0.25 \text{ g} = 250 \text{ mg.}$$

$$\frac{250 \text{ mg.}}{125 \text{ mg.}} \times 5 \text{ mL}$$

$$\frac{250}{125} \times 5 \text{ mL}$$

$$2 \times 5 = 10 \text{ mL.}$$

The patient will receive 10 mL. for each dose.

Second Step  
(use formula)

10 mL. is given 3 times per day

$$3 \times 10 \text{ mL.} = 30 \text{ mL.}$$

The patient will receive 30 mL. each day

Aylward, Joan Marie J., and Duff, Deborah Lynn, A Metric Guide For Health Professionals on Dosages and Solutions, Philadelphia, 1985, W.B. Saunders Co.



Administer Oral Medication Using a Medication Card System

Article 5

Exercise 7

Calculate Oral Dosages From Liquids

Calculate the following dosages from the dose ordered and the dose available:

1. Amphojel 640 mg. p.o. q.3h. (available 320 mg. per 5 ml.)
  
  
  
  
  
  
  
  
  
  
2. Tylenol elixir 500 mg. p.o. q.8h. (available 125 mg. per 5 ml.)
  
  
  
  
  
  
  
  
  
  
3. Mellaril suspension 30 mg. p.o. t.i.d. (available 10 mg. per 5 ml.)
  
  
  
  
  
  
  
  
  
  
4. Milk of Magnesia 30 mg. p.o. hs. (available 1 mg. per 1 ml.)

Administer Oral Medication Using a Medication Card System

Article 5

Exercise 7

**ANSWER SHEET**

Calculate Oral Dosages From Liquids

Calculate the following dosages from the dose ordered and the dose available:

1. Amphojel 640 mg. p.o. q.3h. (available 320 mg. per 5 ml.)

$$\frac{640 \text{ mg.}}{320 \text{ mg.}} \times 5 \text{ ml.}$$

$$\frac{640}{320} \times 5 \text{ ml.}$$

$$2 \times 5 = \underline{10 \text{ ml.}}$$

2. Tylenol elixir 500 mg. p.o. q.8h. (available 125 mg. per 5 ml.)

$$\frac{500 \text{ mg.}}{125 \text{ mg.}} \times 5 \text{ ml.}$$

$$\frac{500}{125} \times 5 \text{ ml.}$$

$$4 \times 5 = \underline{20 \text{ ml.}}$$

3. Mellaril suspension 30 mg. p.o. t.i.d. (available 10 mg. per 5 ml.)

$$\frac{30 \text{ mg.}}{10 \text{ mg.}} \times 5 \text{ ml.}$$

$$\frac{30}{10} \times 5 \text{ ml.}$$

$$3 \times 5 = \underline{15 \text{ ml.}}$$

4. Milk of Magnesia 30 mg. p.o. hs. (available 1 mg. per 1 ml.)

$$\frac{30 \text{ mg.}}{1 \text{ mg.}} \times 1 \text{ ml.}$$

$$\frac{30}{1} \times 1 \text{ ml.}$$

$$30 \times 1 \text{ ml.} = \underline{30 \text{ ml.}}$$

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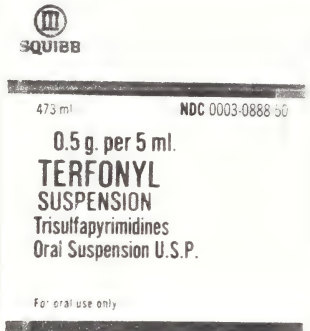
Administer Oral Medication Using a Medication Card System

Article 5

Exercise 7

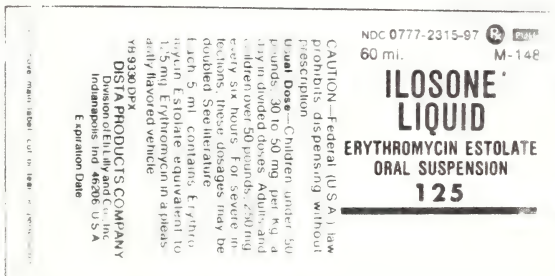
Calculate Oral Dosages From Liquids

Calculate the following dosages by comparing the medication card to the medication label:



5.

5.- Medication card reads:  
Terfonyl lg p.o.  
suspension b.i.d.



6.

6.- Medication card reads:  
Ilosone Liquid 250 mg.  
p.o. q.6h.

Curren, Anna M., Math for Meds, 3rd Ed., Seal Beach, Ca, 1979, Wallcur, Inc.

# Administer Oral Medication Using a Medication Card System

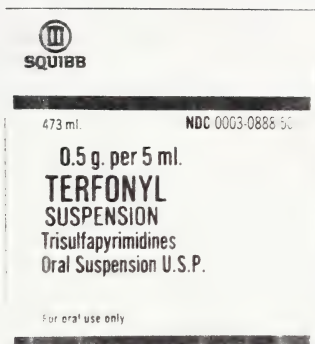
## Article 5

## Exercise 7

### ANSWER SHEET

### Calculate Oral Dosages From Liquids

Calculate the following dosages by comparing the medication card to the medication label:



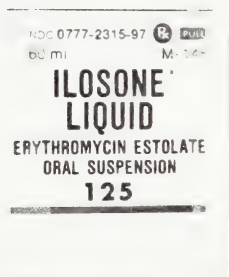
5.  $\frac{\text{Dose Desired}}{\text{Dose on hand}} \times \text{Drug Form} = \text{Amount to Administer}$

$$\frac{1 \text{ g}}{0.5 \text{ g}} \times 5 \text{ ml.}$$

$$\frac{1 \text{ }^2}{0.5 \text{ }_1} \times 5 \text{ ml.}$$

$$2 \times 5 \text{ ml.} = \underline{10 \text{ ml.}}$$

5.- Medication card reads:  
Terfonyl 1g p.o.  
suspension b.i.d.



6.  $\frac{\text{Dose Desired}}{\text{Dose on hand}} \times \text{Drug Form} = \text{Amount to Administer}$

$$\frac{250 \text{ mg.}}{125 \text{ mg.}} \times 5 \text{ ml.}$$

$$\frac{250 \text{ }^2}{125 \text{ }_1} \times 5 \text{ ml.}$$

$$2 \times 5 \text{ ml.} = \underline{10 \text{ ml.}}$$

6.- Medication card reads:  
Ilosone Liquid 250 mg.  
p.o. q.6h.

Administer Oral Medication Using a Medication Card System

Article 5

Exercise 7

Calculate Oral Dosages From Liquids

Calculate the following dosages from the dose ordered and the dose available:

- |   |  |
|---|--|
| 7. Amoxil 500 mg. p.o. q.8h.<br>(available 125 mg. per 5 ml.)   | 8. Largactil 25 mg. p.o. hs.<br>(available 100 mg. per 5 ml.)              |
| 9. Choledyl 300 mg. p.o. q.4h.<br>(available 5 ml. per 100 mg.) | 10. Maxeran 8 mg. p.o. t.i.d. a.c.<br>meals<br>(available 1 ml. per 1 mg.) |

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Administer Oral Medication Using a Medication Card System

Article 5

Exercise 7

ANSWER SHEET

Calculate Oral Dosages From Liquids

Calculate the following dosages from the dose ordered and the dose available:

7. Amoxil 500 mg. p.o. q.8h.  
(available 125 mg. per 5 ml.)

$$\frac{500 \text{ mg.}}{125 \text{ mg.}} \times 5 \text{ ml.}$$

$$\frac{500}{125} \times 5 \text{ ml.}$$

$$4 \times 5 = \underline{20 \text{ ml.}}$$

8. Largactil 25 mg. p.o. h.s.  
(available 100 mg. per 5 ml.)

$$\frac{25 \text{ mg.}}{100 \text{ mg.}} \times 5 \text{ ml.}$$

$$\frac{25}{100} \times 5 \text{ ml.}$$

$$\frac{1}{4} \times \frac{5}{1} \text{ ml.}$$

$$\frac{5}{4} \text{ ml.}$$

$$\underline{1.25 \text{ ml.}}$$

9. Cholestyl 300 mg. p.o. q.4h.  
(available 5 ml. per 100 mg.)

$$\frac{300 \text{ mg.}}{100 \text{ mg.}} \times 5 \text{ ml.}$$

$$\frac{300}{100} \times 5 \text{ ml.}$$

$$3 \times 5 \text{ ml.} = \underline{15 \text{ ml.}}$$

10. Maxeran 8 mg. p.o. t.i.d. a.c.  
meals  
(available 1 ml. per 1 mg.)

$$\frac{8 \text{ mg.}}{1 \text{ mg.}} \times 1 \text{ ml.}$$

$$\frac{8}{1} \times 1 \text{ ml.}$$

$$8 \times 1 \text{ ml.} = \underline{8 \text{ ml.}}$$

Administer Oral Medication Using a Medication Card System

Article 5

Exercise 7

Calculate Oral Dosages From Liquids

Calculate the following dosages from the dose ordered and the dose available:

11. Potassium Chloride oral  
solution 15 mEq. p.o. t.i.d.  
(available 20 mEq. per 15  
ml.)

12. Mycostatin oral suspension  
200,000 u p.o. q.i.d.  
(available 100,000 units per  
1 ml.)

13. Penicillin V oral solution 100,000 u p.o. t.i.d.  
(available 200,000 units or 125 mg. per 5 ml.)

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Administer Oral Medication Using a Medication Card System

Article 5

Exercise 7

ANSWER SHEET

Calculate Oral Dosages From Liquids

Calculate the following dosages from the dose ordered and the dose available:

11. Potassium Chloride oral solution 15 mEq. p.o. t.i.d.  
(available 20 mEq. per 15 ml.)

$$\frac{15 \text{ mEq.}}{20 \text{ mEq.}} \times 15 \text{ ml.}$$

$$\frac{15}{20} \times 15 \text{ ml.}$$

$$\frac{3}{4} \times 15 \text{ ml.}$$

$$\frac{45}{4} \text{ ml.}$$

11.25 ml.

12. Mycostatin oral suspension 200,000 u p.o. q.i.d.  
(available 100,000 units per 1 ml.)

$$\frac{200,000 \text{ u}}{100,000 \text{ u}} \times 1 \text{ ml.}$$

$$\frac{200,000}{100,000} \times 1 \text{ ml.}$$

$$2 \times 1 \text{ ml.}$$

2 ml.

13. Penicillin V oral solution 100,000 u p.o. t.i.d.  
(available 200,000 units or 125 mg. per 5 ml.)

$$\frac{100,000 \text{ u}}{200,000 \text{ u}} \times 5 \text{ ml.}$$

$$\frac{100,000}{200,000} \times 5 \text{ ml.}$$

$$\frac{1}{2} \times 5 \text{ ml.}$$

$$\frac{5}{2} \text{ ml.}$$

2.5 ml.

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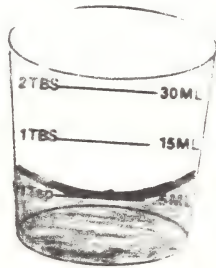
Administer Oral Medication Using a Medication Card System

Article 5

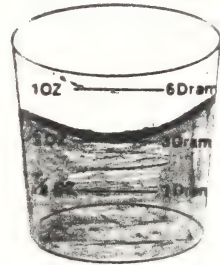
Exercise 8

Read the Meniscus

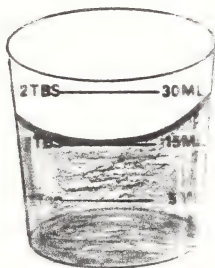
Write in the blanks the level of volume in each medication cup using metric/apothecary units of measurement. (The shaded areas indicate liquid medication)



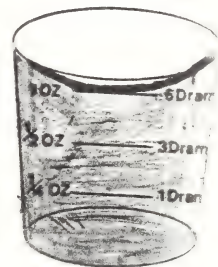
a. \_\_\_\_\_



b. \_\_\_\_\_



c. \_\_\_\_\_



d. \_\_\_\_\_

Squire, Jessie E., Stock, Yvonne N., and Clayton, Bruce C., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co.

Administer Oral Medication Using a Medication Card System

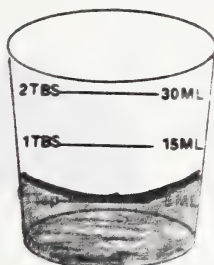
Article 5

Exercise 8

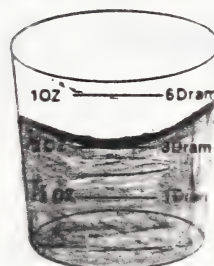
ANSWER SHEET

Read the Meniscus

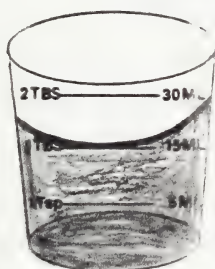
Write in the blanks the level of volume in each medication cup using metric/apothecary units of measurement. (The shaded areas indicate liquid medication)



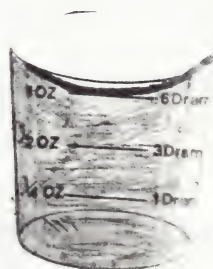
a. 5 ml.



b.  $\frac{1}{2}$  oz. or 3 drams



c. 15 ml.



d. 1 oz. or 6 drams

Squire, Jessie E., Stock, Yvonne N., and Clayton, Bruce C., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co.

**Section B: Administer Oral Medication Using a Medication Card System**

**Objective 5:** Identify safety factors **when/after** administering an oral medication using a medication card system:

- a) verify patient identification
- b) administer a cough medicine
- c) return the medication card to the correct medication card slot

**Learner Activity:**

**Review:**

- i) Review **Objective 17**, Section A
  - a) verify patient identification
  - b) assess the patient
  - c) communicate with the patient
  - d) position the patient
  - e) remain with the patient
  - f) remain with the cart
- ii) Review **Objective 19**, Section A
  - a) observe the effects of the medication
  - b) utilize safety precautions
  - c) replace supplies
  - d) utilize medical aseptic technique

**Article:**

Read **Article 6**  
"Safety Factors **When/After** Administering an Oral Medication Using a Medication Card System"

**Exercise:**

Complete **Exercise 9**  
"Safety Factors When/After Administering an Oral Medication Using a Medication Card System"

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## Administer Oral Medication Using a Medication Card System

### Article 6

#### Safety Factors When/After Administering an Oral Medication Using a Medication Card System

- a) Verify Patient Identification: Place the medication card next to the patient's identification band and check that the information coincides. (See Figure 24)



Squire, Jessie E., Stock, Yvonne, N., and Clayton, Bruce C., Basic Pharmacology for Nurses, 8th Ed., St. Louis, 1985, C.V. Mosby Co.

Check Identification  
Figure 24

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## Administer Oral Medication Using a Medication Card System

### Article 6

#### Safety Factors When/After Administering an Oral Medication Using a Medication Card System

- b) Administer a Cough Medicine: Instruct the patient **not** to take fluids after taking the medicine as fluid washes away the local drug effect.
- c) Return the medication card to the correct medication card slot:
- i) read the information on the medication card for the **next administration time.**
  - ii) read the heading on the medication card slot board for the next **administration time.**
  - iii) check that the two times **coincide.**  
eg. if Valium 5 mg. p.o. t.i.d. was just administered at 0800 hrs, the card would be placed at the next dosage time eg. 1200 hrs.



Administer Oral Medication Using a Medication Card System

Article 6

Exercise 9

Safety Factors When/After Administering an Oral  
Medication Using a Medication Card System

Answer the following questions:

- 1) What instruction would you give a patient who has just swallowed a cough mixture?

---

---

- 2) What **3 safety** factors would you follow when returning a medication card to the correct medication card slot?

i) 

---

---

ii) 

---

---

iii) 

---

---

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Administer Oral Medication Using a Medication Card System

Article 6

Exercise 9

ANSWER SHEET

Safety Factors When/After Administering an Oral Medication Using a Medication Card System

Answer the following questions:

- 1) What instruction would you give a patient who has just swallowed a cough mixture?

Not to take fluids.

- 2) What 3 safety factors would you follow when returning a medication card to the correct medication card slot?

- i) Check the next administration time on the medication card.

- ii) Read the heading on the medication card slot board for the next administration time.

- iii) Check that the two times coincide.

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**Section B: Administer Oral Medication Using a Medication Card System**

**Objective 6:** Identify comfort factors **when administering** an oral medication using a medication card system:

- a) unpleasant tasting medicine
- b) medication that stains the teeth

**Learner Activity:**

**Review:** Review **Objective 18**, Section A

- a) an adequate explanation
- b) adapt administration to the patient
- c) position the patient
- d) maintain a pleasing environment

**Article:** Read **Article 7**  
"Comfort Factors When Administering an Oral Medication Using a Medication Card System"

**Exercise:** Complete **Exercise 10**  
"Comfort Factors When Administering an Oral Medication Using a Medication Card System"

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## Administer Oral Medication Using a Medication Card System

### Article 7

#### Comfort Factors When Administering an Oral Medication Using a Medication Card System

- a) Unpleasant tasting medication:  
(can cause nausea/vomiting)
- (i) use ice water to numb the taste buds.
  - (ii) use fruit juices such as orange/lemon to help remove some of the unpleasant taste.
  - (iii) use straws to prevent the medicine from touching the taste buds.
  - (iv) use jam/jello/custard/applesauce to disguise a medication. (check hospital policy)
- b) Medication that stains the teeth (eg. Iron):
- (i) use straws to prevent the liquid from touching the teeth.
  - (ii) give mouth care after administering the drug (rinsing)

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Administer Oral Medication Using a Medication Card System

Article 7

Exercise 10

Comfort Factors When Administering an Oral  
Medication Using a Medication Card System

1. List 4 nursing actions you can perform if administering an unpleasant tasting medication to a patient.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

2. List 2 nursing actions you can perform if administering a medication that stains your patient's teeth.

1. \_\_\_\_\_
2. \_\_\_\_\_

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Administer Oral Medication Using a Medication Card System

Article 7

Exercise 10

ANSWER SHEET

Comfort Factors When Administering an Oral  
Medication Using a Medication Card System

1. List 4 nursing actions you can perform if administering an unpleasant tasting medication to a patient.

1. Give ice water
2. Give fruit juice
3. Use straws
4. Disguise the medication with jam/jello/custard/apple sauce

2. List 2 nursing actions you can perform if administering a medication that stains your patient's teeth.

1. Use straws
2. Give mouth care

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**Section B: Administer Oral Medication Using a Medication Card System**

**Objective 7:** Identify comfort factors after administration that facilitates the effectiveness of an oral medication using a medication card system.

- a) provide nursing care to promote effect and/or reduce the need for a medication using a medication card system.

**Learner's Activity**

**Review:** Review **Objective 20**, Section A.

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**Section B: Administer Oral Medication Using a Medication Card System**

**Objective 8:** Identify information to report **after administering** an oral medication using a medication card system:

- a) medication withheld
- b) observations
- c) medication error

**Learner Activity:**

**Review:** Review **Objective 21**, Section A

**Objective 9:** Identify information to record after administering an oral medication using a medication card system:

- a) record the administration of an oral medication according to agency policy
- b) record a medication withheld/refused/wasted or conditions imposed on administration of an oral medication according to agency policy
- c) record a medication error according to agency policy
- d) record Schedule "G"/Controlled Drugs according to agency policy

**Learner's Activity:**

**Review:** Review **Objective 22**, Section A



**Section B: Administer Oral Medication Using a Medication Card System**

**Objective 10:** Demonstrate the skill of preparing, administering an oral medication using a medication card system.

**Learner Activity:**

**Task Analysis:** Read and practice Task Analysis

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## Administer Oral Medication Using a Medication Card System

### SECTION B TASK ANALYSIS

#### Wash Hands

#### Gather Data

##### .01 Research Patient Information from Kardex, Chart

- .001 identify age, medication teaching given, diagnosis, allergies, restricted medication information, history of cross sensitivity, tolerance, dependence
- .002 note time nursing care given to reduce the need for medication
- .003 note purpose of the medication in relation to baseline data

##### .02 Check Policy Manual

- .001 note medication administration restrictions for RNA's
- .002 note automatic stop dates for medications
- .003 note routine times for medication administration

##### .03 Research Medication

- .001 identify generic, trade names, dosage range, routes available, desired effect, adverse reaction, drug interactions and nursing considerations

#### Check With Team Leader for Clarification (optional)

#### Obtain Medication Keys (optional)

#### Unlock Medication Room/Cupboard (optional)

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## Administer Oral Medication Using a Medication Card System

### SECTION B TASK ANALYSIS

#### Obtain Equipment and Supplies

- .01 collect paper/plastic medication cups
- .02 collect filled waterjug or appropriate fluid from refrigerator
- .03 collect mortar, pestle, pharmahammer or medi-crusher (optional)
- .04 collect tissues, straws (optional)
- .05 collect other supplies required (eg. food as per agency policy)
- .06 collect medication tray/cart

#### Maintain a Safe Clean Environment

- .01 clean medication tray/cart, counter with disinfectant (optional)

#### Locate Patient's Medication Card

- .01 check under appropriate time slot in medication card slot board
- .02 obtain medication card
- .03 hold medication card in your hand

#### Read the Medication Card

- .01 compare card against the doctor's order
- .02 note if it is the **Right Drug** - check generic/trade names, check spelling
- .03 note if it is the **Right Dose** - check dosage points
- .04 note if it is the **Right Time** - check if it is self-terminating, check routine hospital times
- .05 note if it is the **Right Route** - check any observations required by RN for route choice
- .06 note if it is the **Right Patient** - check patient name, identification and room number

#### Locate the Correct Medication

- .01 find the patient's room number slot in the medication cupboard  
OR
- .02 find the correct controlled dispenser

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## Administer Oral Medication Using a Medication Card System

### SECTION B TASK ANALYSIS

#### Calculate Dosage

- .01 note dosage written on medication card
- .02 compare to dosage on medication container
- .03 calculate dosage on paper
- .04 check calculation
- .05 **ask RN** to check calculation

#### Read the Label on the Medication Container Before You Take the Container from the Shelf (First Time)

- .01 compare to the information on the medication card
- .02 note if it is the **Right Drug** - check generic/trade names, check spelling
- .03 note if it is the **Right Dose** - check dosage points
- .04 note if it is the **Right Time** - check if it is self-terminating, check for routine hospital times
- .05 note if it is the **Right Route** - check any observations required by RN for route choice
- .06 note if it is the **Right Patient** - check patient's name, identification and room number

#### Read the Label on the Medication Container as You Pour the Tablet(s)/Capsule(s) into the Medication Container's Cap (Second Time)

OR

#### Read the Label on the Medication Container as You Pour the Liquid into the Plastic Medication Cup (Second Time)

- .01 compare to the information on the medication card
- .02 note if it is the **Right Drug** - check generic/trade names, check spelling
- .03 note if it is the **Right Dose** - check dosage points
- .04 note if it is the **Right Time** - check if it is self-terminating, check for routine hospital times
- .05 note if it is the **Right Route** - check any observations required by RN for route choice
- .06 note if it is the **Right Patient** - check patient name, identification and room number

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## Administer Oral Medication Using a Medication Card System

### SECTION B TASK ANALYSIS

<u>Pour the Tablet(s)/Capsule(s) from the Medication Container into the Medication Containers Cap</u>	<u>Pour the Liquid into the Plastic Medication Cup</u>	<u>Pour the Tablet(s)/Capsule(s) from the Controlled Dispenser into the Medication Cup</u>
.01 open medication container with left hand	.01 open medication container with left hand	.01 note number of tablets in dispenser
.02 hold medication container with label facing palm of right hand	.02 place medication cap facing upward on counter	.02 note highest numbered compartment
.03 hold medication container cap facing upward in left hand pour required dosage of tablet(s)/capsule(s) into cap without touching the drug(s)	.03 clean lip of medication container with a paper towel (optional)	.03 place medication cup under dispenser
.04 pour tablet(s)/capsule(s) from the cap into paper medication cup without touching the drug(s)	.04 hold medication container with label facing palm of right hand	.04 open plastic cover on dispenser by pulling the lid toward you centering the opening over a tablet
.05 replace cap on medication container with left hand	.05 hold plastic medication cup in left hand at eye level	.05 drop tablet/capsule from the highest numbered compartment into the medication cup
	.06 note the level of volume measurement on plastic medication cup	.06 check that the tablet/capsule falls into the medication cup
	.07 place fingernail of thumb on correct measurement level on outside of plastic medication cup	.07 close plastic cover on dispenser by pushing the lid away from you

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## Administer Oral Medication Using a Medication Card System

### SECTION B TASK ANALYSIS

#### Pour the Liquid into the Plastic Medication Cup

- .08 tilt medication container carefully allowing liquid to pour into the plastic medication cup
- .09 check that the liquid reaches the correct measurement level indicated by your finger nail
- .10 discard excess medication as per agency policy (optional)
- .11 read the meniscus correctly

#### Use Syringe (optional)

- .12 use syringe for small amounts eg. under 5 ml. to test accuracy
- .13 pull back on plunger of syringe
- .14 fill syringe with liquid from medication cup
- .15 hold syringe with tip upward and expel air until desired level is reached
- .16 discard excess medication per agency policy (optional)
- .12 place the filled plastic medication cup on the counter
- .13 wipe lip of medication container with a paper towel
- .14 replace cap on medication container

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## Administer Oral Medication Using a Medication Card System

### SECTION B TASK ANALYSIS

Pour the Liquid into the  
Plastic Medication Cup

Use Syringe  
(optional)

- .17 expel required  
amount of medication  
from syringe into  
medication cup
- .18 place the filled  
plastic medication  
cup on the counter
- .19 wipe lip of  
medication container  
with a paper towel
- .20 replace cap on  
medication  
container

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## Administer Oral Medication Using a Medication Card System

### SECTION B TASK ANALYSIS

#### Read Label on Medication Container as You Return it to the Medication Shelf (Third Time)

- .01 compare to the information on the medication card
- .02 note if it is the **Right Drug** - check generic/trade names, check spelling
- .03 note if it is the **Right Dose** - check dosage points
- .04 note if it is the **Right Time** - check if it is self-terminating, check for routine
- .05 note if it is the **Right Route** - check any observations required by RN for route choice
- .06 note if it is the **Right Patient** - check patient name, identification and room number

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## Administer Oral Medication Using a Medication Card System

### SECTION B TASK ANALYSIS

#### Crush Medication Following Agency Policy (optional)

Obtain Pharmhammer	Obtain Mortar and Pestle	Obtain Medi-Crusher
.01 fold the medication cup containing the medication together	.01 place the medication cup #1 containing the medication in the mortar	.01 place the medication cup containing the medication under the crusher
.02 strike the medication cup with the pharmhammer	.02 cover the rounded end of the pestle with a paper medication cup #2	.02 cover the crusher with a second paper medication cup
.03 repeat until the medication is crushed	.03 hold the pestle and use a grinding motion on the medication in the medication cup #1	.03 push down directly on handle of medi-crusher
.04 unfold medication cup	.04 repeat motion until the medication is crushed	.04 repeat motion until the medication is crushed
.05 pour medication into a second paper medication cup	.05 remove the covered pestle from the mortar	.05 remove the second medication cup from the crusher
	.06 check for adhered medication on the medication cup #2	
	.07 use the edge of the medication cup #1 to collect the adhered medication	
	.08 discard the medication cup #2	
	.09 discard any medication not in the medication cup #1	

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## Administer Oral Medication Using a Medication Card System

### SECTION B TASK ANALYSIS

#### Divide a Scored Tablet (Optional)

- .01 note appropriate division line on tablet (1/2, 1/4 etc).
- .02 obtain a paper towel (knife, optional)
- .03 place tablet on paper towel and fold towel over tablet
- .04 break the tablet on the appropriate line or cut with a knife
- .05 pour the required portion of the tablet from the paper towel into the medication cup
- .06 pour the remaining divided tablet into the medication container
- .07 discard unevenly scored tablet as per agency policy

#### Dilute Medication (optional)

- .01 note manufacturer's/prescription diluent recommendation
- .02 add the right diluent in the right amount to the medication
- .03 follow manufacturer's/prescription instructions on mixing the diluted medication

#### Place Medication Card Directly Behind the Medication Cup on a Medication Tray

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## Administer Oral Medication Using a Medication Card System

### **SECTION B TASK ANALYSIS**

#### Bring the Medication Tray to the Right Patient

##### Patient Unavailable

- .01 Identify patient when available

#### Identify Patient

- .01 identify yourself
- .02 ask patient his name
- .03 place the medication card next to the patient's I.D. band and compare the patient's name, Dr., identification and Room numbers

#### Check for Allergies

- .01 check patient's arms for an allergy armband
- .02 ask patient if he has any allergies
- .03 check patient's arm or neck for a medic alert band

#### Explain Procedure

- .01 face patient
- .02 use a firm, positive approach when explaining
- .03 check if the patient requires devices to facilitate communication eg. hearing aid

#### Reinforce Teaching of the Medication

- .01 use terms the patient will understand
- .02 ask the patient if he is familiar with taking the medication

#### Determine Patient Response

- .01 ask if he has any questions
- .02 ask if he understands
- .03 ask if he has any worries/fears
- .04 listen to patient comments

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## Administer Oral Medication Using a Medication Card System

### SECTION B TASK ANALYSIS

#### Determine Patient Response (con't)

##### Re-explain

- .05 answer questions (optional)
- .06 reinforce teaching
- .07 check if the patient understands
- .08 report to the T.L. if patient  
confused or extra teaching required

##### Clarify Patient Questions

- .05 recheck the medication card
- .06 note the "5 Rights"
- .07 recheck the medication card  
against the doctor's order
- .08 note the "5 Rights"
- .09 report to T.L. the patient's  
comments
- .10 report to T.L. any  
inconsistencies or doubts

#### Administer the Oral Medication

- .01 adapt administration according to agency policy (ie. with food)
- .02 pour 1/2 glass of ice water (or appropriate fluid)
- .03 place fluid within reach

##### Patient takes his own medication

- .04 ask patient to hold  
the medication cup  
in one hand
- .05 ask patient to hold  
glass in other hand
- .06 instruct patient to  
place the medication  
cup to his lips and  
tilt the medication  
into his mouth
- .07 instruct patient to  
put medication far  
back on his tongue  
(optional)
- .08 instruct patient to  
drink the fluid and  
swallow the medicat-  
ion (optional)

##### Assist patient to take his Medication

- .04 instruct patient to  
open his mouth
- .05 place the medication  
cup to the patient's  
lips with one hand
- .06 support head and  
neck of patient  
(optional)
- .07 tilt the medication  
cup into the  
patient's mouth,  
releasing the  
medication
- .08 give patient fluid
- .09 instruct patient to  
swallow (optional)

##### Unable to Administer Medication

- .01 notify the T.L.
- .02 follow agency  
policy regard-  
ing disposal  
routine.

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## Administer Oral Medication Using a Medication Card System

### SECTION B TASK ANALYSIS

#### Observe Patient Closely

- .01 remain with the patient
- .02 observe patient swallowing medication
- .03 look under patient's tongue, in his mouth cavity, hands, or in the bed linen (optional)
- .04 observe patient reaction - desired effect, side effects, idiosyncratic, and allergic reactions, tolerance, dependence
- .05 note for any problems administering the medication

#### Perform Safety Precautions

- .01 place siderails up (optional)
- .02 place callbell near hand
- .03 position patient in semifowlers/head of bed elevated (optional)
- .04 apply safety restraints (optional)

#### Perform Comfort Measures

- .01 perform required nursing care to facilitate the action of the medication
- .02 instruct patient you will return in 30 - 45 minutes

#### Maintain Aseptic Technique

- .01 wash hands
- .02 discard disposable medication cup in paper bag
- .03 discard wasted medication as per agency policy

#### Report and Record the Administration of an Oral Medication According to Agency Policy

- .01 note the correct date, time, and medication on the medication record
- .02 note the medication name, dosage, and route on the medication record
- .03 record the actual time medication administered
- .04 record initials, signature and status on the medication record
- .05 report and record observations in nursing notes/medication flow sheet/kardex (note the desired, adverse effect, problems administering the medication, patient reaction)

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## Administer Oral Medication Using a Medication Card System

### SECTION B TASK ANALYSIS

#### Report and Record the Administration of an Oral Medication According to Agency Policy (con't)

- .06 record nursing care given to facilitate/reduce the need for medication
- .07 record safety precautions taken
- .08 record comfort measures given

#### Report and Record a Medication Error According to Agency Policy

- .01 report to T.L. and record on an unusual incident report/nursing notes/kardex
- .02 report/record the time the incident happened or was discovered
- .03 record reporting of medication error
- .04 report/record observations
- .05 report/record action taken
- .06 report/record contributing factor that caused incident

#### Report and Record a Medication Withheld/Wasted According to Agency Policy

- .01 report to T.L. and record in nursing notes/medication record/special medication sheet/kardex
- .02 note the correct date, time, and medication on the medication record
- .03 note medication name, dosage, route on the medication record
- .04 record initials, signature and status on the medication record
- .05 report/record the reason the medication was not administered
- .06 record a wasted dose with another nurse (RN/RNA) as a witness

#### Record Schedule "G" Drugs/Controlled Drugs According to Agency Policy

- .01 count and record at the end of each 8 hr. shift the controlled drugs by two nurses, (RN/RNA) the one coming on duty and the one leaving. Use red ink if required
- .02 check that the number distributed plus the number remaining equal the amount assigned to the unit
- .03 record each administration of a medication as per Report and Record the Administration of an Oral Medication
- .04 record a wasted dose with another nurse (RN/RNA) as a witness

#### Replace Supplies

- .01 place medication tray in medication room

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## Administer Oral Medication Using a Medication Card System

### **SECTION B TASK ANALYSIS**

#### Return Medication Card

- .01 read information on the medication card for next administration time
- .02 read heading on the medication card slot board for administration time
- .03 check that the two times coincide
- .04 return medication card to correct card slot

#### Maintain Aseptic Technique

- .01 clean medication counter with disinfectant
- .02 dispose of any used supplies
- .03 rinse and dry equipment used for crushing medications (optional) or dividing scored tablets (optional)

#### Wash Hands

#### Restock Medication Counter

- .01 check and replenish any supplies, (paper medication cups, tissues, paper bag)
- .02 replace equipment used for crushing medications/dividing scored tablets

#### Return Waterjug

- .01 empty waterjug
- .02 refill waterjug
- .03 place in refrigerator

#### Wash Hands

#### Lock Medication Room (Optional)

- .01 lock medication room (optional)

#### Return Medication Keys to the T.L.

#### Wash Hands

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Administer Oral Medication Using a Medication Card System

Section B  
Mini-Quiz

Match terms/abbreviations in Column A with the definitions in Column B:

<u>Column A</u>	<u>Column B</u>
1. _____ g	a) a grooved tablet
2. _____ medicine cup	b) gram
3. _____ mg.	c) unit
4. _____ syrup	d) cup for measurment
5. _____ scored tablet	e) milligram
6. _____ u	f) a drug in a sugar solution

Calculate the following:

7. 4 oz. = \_\_\_\_\_ cc.

8. 3000 mg. = \_\_\_\_\_ g (Gm)

9. 15 ml. = \_\_\_\_\_ cc.

10. Identify what information is missing from the medication card:

Milk of Magnesia 30 cc. p.o.
------------------------------------

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## Administer Oral Medication Using a Medication Card System

### Section B

#### Mini-Quiz

11. Identify from the picture below safety rules when preparing oral medications using a medication card system:



- A. \_\_\_\_\_  
B. \_\_\_\_\_  
C. \_\_\_\_\_  
D. i) \_\_\_\_\_  
ii) \_\_\_\_\_  
iii) \_\_\_\_\_  
E. \_\_\_\_\_

Culver, Vivian M., Modern Bedside Nursing, 8th Ed., Philadelphia, 1974, W.B. Saunders Co.

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Administer Oral Medication Using a Medication Card System

Section B  
Mini-Quiz

Indicate if the following statements are True or False:

12. You can use a medication container whose label is soiled. \_\_\_\_\_

13. You should shake a liquid medication to dispense the medication. \_\_\_\_\_

14. You can pour a medication back into a bottle if the patient refuses. \_\_\_\_\_

15. You can leave a medication on a patient's bedside. \_\_\_\_\_

16. Tell a patient who has received a cough mixture to drink fluids. \_\_\_\_\_

Calculate the following:

17. Ampicillin 250 mg. p.o. q.8h. (available 125 mg. = 5 ml.)

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### Administer Oral Medication Using a Medication Card System

## Section B

### Mini-Quiz

**Calculate the following:**

18. Tegretol 100 mg. p.o. t.i.d. (available 200 mg. tablet)
19. V-Cillin 500 mg. p.o. q.6h. (available 400,000 u = 250 mg. tablet)

Administer Oral Medication Using a Medication Card System

Section B  
Mini-Quiz

Circle the correct answer:

On checking the drug dosage of two medication labels you discover:

"Label A states, 5 grs = 325 mg."

"Label B states, 5 grs = 300 mg."

22. What is the reason for the discrepancy in accuracy?

- a) medication labelling
- b) apothecary system
- c) medication calculation
- d) metric system

23. What does the term "mEq." refer to:

- a) international unit
- b) milligram
- c) millequivalent
- d) millilitre

24. What do the terms "agit. elix." refer to:

- a) mix the emulsion
- b) dilute the suspension
- c) stir the suspension
- d) shake the elixir

Fill in the blanks:

25. When water is used to mix with Metamucil, the water is called a \_\_\_\_\_.

26. The international unit refers to the \_\_\_\_\_ of a drug.

Your Score \_\_\_\_\_ Successful Score  $\frac{20}{26}$  (80%) (6x allowed)

\* Note: Review each correct answer by corresponding objective

\*\* Note: Review **all** of Section B if you had more than 6 answers incorrect

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Administer Oral Medication Using a Medication Card System

Section B

Mini-Quiz

Answer Sheet

<u>Answer</u>	<u>Objective(s)</u>
1. b	1
2. d	1
3. e	1
4. f	1
5. a	1
6. c	1
7. $\frac{4 \text{ oz.}}{s \text{ cc}} = \frac{1 \text{ oz.}}{30 \text{ cc.}}$ $1 \text{ oz.} \times s \text{ cc.} = 4 \text{ oz.} \times 30 \text{ cc.}$ $1 \times s = 4 \times 30$ $s = 120$ <u>120 cc.</u>	4
8. $\frac{3000 \text{ mg.}}{s \text{ g}} = \frac{1000 \text{ mg.}}{1 \text{ g}}$  $1000 \text{ mg.} \times s \text{ g} = 3000 \text{ mg.} \times 1 \text{ g}$ $1000 \times s = 3000 \times 1$ $1000s = 3000$  $s = \frac{3000}{1000}$  $s = 3$ <u>3 g</u>	4
9. 15 cc.	4
10. time	2, 3



Administer Oral Medication Using a Medication Card System

Section B  
Mini-Quiz  
Answer Sheet

<u>Answer</u>	<u>Objective</u>
11. A) maintain aseptic technique/wash hands B) read the label as you take the medication container from the shelf while comparing to the medication card C) read the label before you pour the medication while comparing to the medication card D) i) hold medication cup at eye level ii) place thumb on exact measurement level iii) pour with label facing palm of hand E) read the label as you return the medication container to the cupboard while comparing to the medication card.	4
12. False	4
13. True	4
14. False	5
15. False	5
16. False	5
17. $\frac{250 \text{ mg.}}{125 \text{ mg.}} \times 5 \text{ ml.} = \frac{250}{125}^2 \times 5 \text{ ml.} = 2 \times 5 \text{ ml.} = \underline{10 \text{ ml.}}$	4
18. $\frac{100 \text{ mg.}}{200 \text{ mg.}} \times 1 \text{ tab.} = \frac{100}{200}^1 \times 1 \text{ tab.} = \frac{1}{2} \times 1 \text{ tab.} = \underline{1/2 \text{ tab.}}$	4
19. $\frac{500 \text{ mg.}}{250 \text{ mg.}} \times 1 \text{ tab.}$ $\frac{500}{250}^2 \times 1 \text{ tab.}$ $2 \times 1 \text{ tab.}$ $2 \text{ tabs. (400,000 u = 250 mg.)}$ $(800,000 \text{ u} = 500 \text{ mg.})$	4

## Administer Oral Medication Using a Medication Card System

### Section B Mini-Quiz Answer Sheet

<u>Answer</u>	<u>Objective</u>
20. 4	6
21. b	5
22. b	4
23. c	4
24. d	1
25. diluent	4
26. biological action	4

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Administer Oral Medication Using a Controlled Dosage/Unit Dose/Medication Card System

Module Assessment  
(EVALUATION)

Please check appropriate box: AVC Calgary ( ) AVC Edmonton ( )

We would like to know what you think of the module. Please complete this short questionnaire and pass it in to your instructor at the completion of the module.

Objectives

1. Are the objectives for the module clear to you?

Yes ( ) No ( )

2. Did the specified activities, case studies, exercises, articles help you to meet the objectives?

Yes ( ) No ( )

3. Were you able to follow the task analysis when practising the skill?

Yes ( ) No ( )

4. Was the material understandable?

Yes ( ) No ( )

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